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Educational News and Editorial Comment

CAPITALIZING JUNIOR HIGH SCHOOL AND JUNIOR-COLLEGE REORGANIZATION

Word has been received that the Board of Education of Parsons, Kansas, now operating the school system on the 6-3-3-2 plan, has given its approval to reorganization on the 6-4-4 plan. The system will begin operation on the new plan with the opening of schools in September. Schools at the secondary level will include two junior high schools, each of which will house four hundred to five hundred pupils in Grades VII–X, and a superior unit, the junior college, made up of students in the last four years of the system, Grades XI–XIV. At the present time the system contains four units at the secondary level, namely, two junior high schools of three grades, a senior high school of three grades, and a two-year junior college. The superintendent of schools, Rees H. Hughes, states that the new plan has been under consideration for a half-dozen years and that the system and the community are now ready for the change.

Parsons thus joins the small company of systems pioneering in what recommends itself to many persons in education as the logical organization of American education. The interests of democratization of education brought junior high school reorganization, and the

most frequent type of junior unit now includes Grades VII, VIII, and IX. Interests of democratization also brought the two-year public junior college, these interests being powerfully reinforced by the lack of opportunities for employment and the trends of internal reorganization within the colleges and universities. The question may well be raised whether the first adjustment in school organization to these interests and forces, namely, the establishment of new short units at the lower and the upper limits of the old four-year high school, is the arrangement that should finally prevail. It seems more reasonable to urge a rearrangement that achieves a simpler succession of units in the American system of education, like that represented in the 6-4-4 plan. Such a simplification should aid substantially in working out the optimum articulation of the system and thereby give full effect to junior high school and junior-college reorganization.

Heavy Going for the Child-Labor Amendment

An item in this section of the March *School Review* referred to the present as the psychological moment for pressing for approval, in the necessary remaining states, of the Child-Labor Amendment to the United States Constitution. Since that writing progress toward ratification has been discouragingly slow. Only two states have approved the amendment since then, bringing the total to twenty-four states, which is still twelve states short of the necessary three-fourths of all. It would be exceedingly unfortunate that, with so many forces and humanitarian groups now favorable, the amendment should not shortly prevail.

The agencies obstructing ratification have been competently identified by Charles C. Burlingham in an article on "The Need for a Federal Child Labor Amendment" published in the April *American Bar Association Journal*. Burlingham is a former president of the Association of the Bar of the City of New York and is chairman of the National Non-partisan Committee for Ratification of the Federal Child Labor Amendment. As one summarizes the nature of the opposition from this authoritative source, it appears to have its origin chiefly in manufacturers' associations and the newspapers of the country—the two groups profiting most from exploitation of children. In particular, the National Association of Manufacturers,

the southern textile group, the American Newspaper Publishers' Association, and the International Circulation Managers' Association have been most active in efforts against ratification.

Burlingham includes two other agencies of opposition to the amendment. Many farm groups now oppose it, although, when the amendment was first proposed in Congress, the National Grange supported it. Burlingham says, "It is not without significance that the flood of propaganda to persuade the rural population that the amendment is aimed at work on the home farm was started in 1925 immediately after the first few states had ratified—all agricultural states." He states further that the Farmers' States Rights League, which issued much of this material, was found to be "not a farm organization at all but a tool of certain southern textile interests." He reports that, although the amendment is favored by some outstanding spokesmen among Roman Catholics, many of that faith oppose it "on the ground that it might lead to federal regulation of education and even the abolition of Catholic and other religious schools." This argument, he contends, is without legal basis and has been effectively answered, but the opposition continues.

Curriculum Trends in Illinois

In a contribution to the *Illinois Teacher* for April, F. C. Hood and A. W. Clevenger, respectively assistant high-school visitor and high-school visitor for the University of Illinois, have undertaken to answer the question, "What Is Happening to the High-School Curriculum?" The answer is based on compilations of certain evidence in the annual reports of 379 high schools in the state accredited by the North Central Association of Colleges and Secondary Schools. The changes are those reported to have been made during the interval between June, 1929, and January, 1935—practically the period of the depression. The tabulations made for the study show (1) the number of schools reporting no changes in the program of studies, (2) the subjects eliminated and the number of schools eliminating each subject, and (3) the subjects added and the number of schools adding each subject.

The authors report that among the important conclusions to be drawn from the study are the following.

1. A very large proportion of the Illinois high schools accredited by the North Central Association of Colleges and Secondary Schools have made changes in

their programs of studies during the past five years. These changes have not been limited to schools of any particular group. In those high schools which enrol fewer than five hundred pupils, there seems to be a tendency to eliminate studies when others are added to the program. This tendency is much less pronounced in schools enrolling more than five hundred pupils. It is quite evident, however, that the general policy has been to retain subjects already included in the program of studies and to add other studies to the program. This is indicated by the fact that the aggregate number of schools eliminating studies is 389, while the aggregate number of schools adding subjects is 954. It appears that there has been a considerable broadening of the program of studies for high schools of Illinois during the past five years.

2. The only field in which more schools have eliminated subjects than have added them is the field of foreign languages. German appears to be gaining in popularity. There has been a loss in the case of Latin. The loss, however, has occurred in third- and fourth-year Latin. The number of schools eliminating French is practically the same as the number of schools adding this subject to the program of studies. Spanish seems to have lost somewhat in popularity.

3. In the field of social studies there appears to be much activity. It also appears that subjects in this field are eliminated or added without a great deal of planning. This is shown by the fact that all of the social studies eliminated have been added to the program of studies in other high schools.

4. Considerable attention seems to have been given to the matter of providing opportunities in the field of those studies commonly classified as non-academic in character. There has been a pronounced gain in the case of agriculture, home economics, and industrial arts. This is true to a less degree of art and drawing. The tendency to add non-academic subjects to the program of studies is very pronounced in the field of the commercial studies. It is evident that general business training is becoming a very popular subject in the high schools of Illinois.

5. In the field of mathematics the number of schools adding courses in this field is greater than the number eliminating courses in mathematics. During the past year or two a large number of high schools have enrolled postgraduate students. In several cases advanced courses in mathematics have been added to meet the needs of these pupils.

6. In the field of science there appears to be uncertainty as to whether the program of studies should include general science or semester courses in physiography and physiology. Chemistry seems to be increasing in popularity as a high-school subject. In the case of physics, there has been no change with the exception that two schools have added a course in household physics and one school has eliminated such a course. There appears to be a tendency to eliminate zoölogy and botany as semester courses and to replace these subjects with a year course in biology.

7. Music apparently has been increasing in popularity in the high schools. A large part of the gain indicated in the field of music is due to the increased

number of schools offering courses in band, orchestra, and glee club. There have been substantial gains, however, for history of music, harmony, and appreciation.

8. Illinois has a physical-education law which requires all high-school pupils to take work in physical education. Thus far a large proportion of the Illinois high schools have not been able to meet this law in full, and consequently there is much room for improvement. It is somewhat surprising, therefore, to find that there has been such a small gain in the number of high schools adding courses in physical education to the program of studies.

Several of these trends are in harmony with those disclosed for senior and four-year high schools in the National Survey of Secondary Education (see Monograph Number 19, *The Program of Studies*), a fact which suggests that the trends found in the survey to have been characteristic of the period prior to 1930 have continued during the years of the economic recession. The reader with a special interest in the curriculum should find it profitable to check one set of trends against the other and to try to account for similarities and differences.

People's High Schools and Study Circles in Sweden

With the great current interest in problems of unemployed youth and in adult education, attention frequently turns to what the countries of Europe have done in matters of education at this level. The folk high school of Denmark has often been advocated as affording something of suggestion for solution of the problem in this country. Less has been said about analogous developments worthy of scrutiny in another Scandinavian nation, Sweden. A correspondent to the London *Times Educational Supplement* in a recent issue describes "How Sweden Educates Herself" through people's high schools and study circles. We quote all but the closing paragraph of the article, a paragraph which names the able leaders of the movement.

"Adult education" in Sweden is not so much a luxury as a way of killing time, for the long winters enforce leisure on the farming population. After harvest the farmer plows and sows what fields he can, before the early frosts, stalls his beasts, and then, apart from the carriage of fodder by sledge and the care of the byres, he has little to do during perhaps six months in the year, for his few acres lie under frost and snow.

The farming communities are, for the most part, small and scattered; and

communications are difficult through distance, weather, and bad roads. Even the village hall may be difficult of access, and there can be no evening jaunts to the market-town. But the peasant has much to occupy him indoors. Tools and utensils must be repaired and new ones made; spinning and weaving never cease. From these essentials they have developed through centuries a tradition of homecrafts—among the women beautiful weaving, embroidery, and lace-making; among the men wood-carving and carpentry, basket-making, and decorative painting, besides the workshop crafts such as iron-work, copper-work, and the small industries of clock-making and knife-making. All these traditional crafts flourish today, but the peasant-farmer knows he must have some book learning as well.

With the Compulsory Education Act of 1842 and the growth of the farmers' political power, popular civic education began to assume importance. Sweden soon seized upon the Danish conception of the People's High School, a form of voluntary adult education for the people in the winter months. From the three established in Sweden in 1868 they have increased eighteen-fold. In some ways these Swedish schools differ from their Danish prototype. The Danish schools were originally religious in motive. They were markedly idealistic and shunned both the university teacher and the textbook, relying wholly on the inspirational power of the spoken word. The Swedish schools, on the other hand, have always admitted some academic teaching and, with one or two exceptions, adopt no definitely religious outlook. Not that the People's High Schools conform to one type in form or spirit; each school has a flavor that differentiates it from all others. Inspiriting places they prove to be. Even in these days of depression they are full of eager young men and women who, after a few years of labor—industrial, agricultural, or domestic—have decided to give up six months' wage-earning to struggle with the exercise of their minds. It means for them a sacrifice of time and money (low though the charges are); and there is no certificate or other material gain in return. Therein, indeed, for many, lies its value. Those pupils have come because they want to learn, and some estimable things they certainly do learn. Their bodies grow healthier, as everyone remarks; and they learn to use books. They learn, too, some of the intellectual and social pleasures of a communal life. Most of the *Folkhögskolor* provide lodging within their walls, and all provide common and excellent meals. The students elect their own representatives to organize some of their activities, such as debates and entertainments. The give-and-take of community life is a useful experience to the Swede who (except on set and due occasions such as his birthday or the last of April) is apt to be a shy, dour fellow, not given to expanding.

The schools receive grants from the state, and unemployed persons may hold scholarships there. Common to all schools is a certain minimum curriculum that includes Swedish, geography, history, elementary mathematics, science, economics, and gymnastics. Beyond this minimum each school varies widely, one emphasizing handicrafts, another technical subjects, another singing, and so on. The schools offer a variety of optional classes, often in the form of study

circles. Through debates, through individual work, and through the informal study circles, the teachers obtain suggestions of their students' interests and try to develop these in further work. It is ever-varying, absorbing work among minds of widely different caliber, many having had no traffic with conceptual thought.

Some People's High Schools, while drawing a percentage of students from outside their province, preserve local traditions and handicrafts. Such is *Mora Folkhögskola*, founded by the painter and collector Zorn. It is an outstanding example of the rural school of the older type, drawing its pupils largely from the locality and from the classes of young agricultural laborers, servants, and small craftsmen. The setting of the school among ancient log buildings by the shores of Lake Siljan has sentimental associations for the Swedes. It is notable for its superb pictures by Liljefors, Prince Eugen, Carl Larsson, and Zorn himself, and for its collection of fine old embroidery and weaving. The love of local crafts and the beauty of tradition is carried out in the very chairs, in the copper cream jugs in everyday use, in the embroidery which the girls work at, in their dancing and their songs.

The students are at eight o'clock on the dark winter mornings toiling over history and English and bookkeeping; but they study more practical subjects also—mapping, drawing, and a choice of technical subjects. Saturday mornings the men spend in the workshops, the smithy, or the carpenter's shop; the women, weaving, embroidering, or sewing in their beautiful local designs—work that enlarges their feeling for beauty and gives them a sense of command over material. Occasional lectures and excursions still leave them time for exercise, reading, and discussion, while on Saturday evenings they let themselves go in dance and song and game, again along the traditional lines and patterns of their province.

Sigtuna Folkhögskola is traditional and local in a different sense. At the beginning of the century, through the incentive of Christian students, the Sigtuna Foundation was created in the oldest home of Christianity in Sweden, and a high school was formed by its side. The fees of this school are slightly higher, and entrance to it is sought from all over the land. The teaching is definitely cultural and idealistic, including religion and lectures on "self-education," with psychology and philosophy introduced in a second-year course. The optional study circles held after dinner represent a high intellectual standard. The late Archbishop Söderblom was one of the governors of the Sigtuna Foundation which runs, besides the high school, a boys' boarding school, many church conferences, and students' meetings. His broad-minded inspiration is here in the simple services in the indoor or the open-air chapel. The beautiful cloistral-looking building which crowns a rocky hill is a speaking symbol for the Swedish Christian students.

Brunnsvik is yet another distinct type. Though it was founded by Forsslund to be a center of the local and traditional culture of Dalarne, circumstances arose at the beginning of the nineteenth century which turned the school into a

study base for the industrial workers' movement. Now the trades union send their men from all over the country to study there, to equip themselves to become leaders or secretaries. Many members of parliament are old Brunnsvik pupils. The labor organizations hold special summer courses there; the normal winter course is, of course, not limited to their ranks. At Brunnsvik are to be found older men, and a few women, who have already tried to teach themselves by reading and by evening classes or study circles. They possess the industrial worker's comparative intellectual quickness, and their courses are designed to fit their needs. Their curriculum includes economics, philosophy, the history of civilization, international politics, English, or German, and an advanced class in social psychology. The growth of capitalism is assailed from every angle, and the history of the labor movement is intensively studied. Whatever their politics may be, this assemblage of eager young men stretching their minds in contact with literature and theory offers a quickening experience. Brunnsvik students can relax on the forest-clad hills in their free hours and in the evening over hearty debates and enthusiastic play-reading. On Sunday nights a selected body takes over the high-table and expresses itself in burlesque speeches, caricatures, and songs. Here, as in other People's High Schools, the students break into song after meals. Every school has its set of songbooks that are often used to preface a lesson.

The largest People's High Schools have grown up in Skåne, the prosperous agricultural province in the south of Sweden. A few have been formed in towns; the best known of these, Birkagården, in Stockholm, includes a social center and in this way resembles one of our settlements as well as a workingmen's college. The essential everywhere is the voluntary nature of the school; men and women have come together with a desire to learn. Reunions, letters, stray remarks bear witness to the appreciation which the students feel for the work, and to the strong hold which the spirit and the wisdom of the schools have taken on those who pass through them.

The People's High School, however, could not meet the needs of all, particularly in the industrial development of the nineteenth century. Town workers, though many of them attend the high schools, are generally attracted to evening classes. In 1907 Lektor Oscar Olsson, then an undergraduate, started the first study circle in Lund, this form of education clearly distinguishing itself from the lecture in being an effort for the workers by the workers. The first circles were formed in connection with the temperance movement; but the scheme was soon adopted by the growing numbers of the *Arbetarnes Bildningsforbund*, equivalent to our Workers' Educational Association, a society offering all kinds of educational facilities to the town worker.

In Stockholm at present about 55 per cent of the A.B.F. members are factory workers, about 33 per cent come from shops and offices, and about 10 per cent are unemployed and exempt from the small charges normally payed. About eight thousand study circles are now active in Sweden, the most popular subjects being modern languages (especially English, for which Swedes have an almost

disconcerting facility) and economics. Other subjects include psychology, ambulance work, household economics for women, bookkeeping, gymnastics. A circle is formed as soon as the need is expressed.

In the *Studie-Hem* of the town's A.B.F., often charmingly decorated and fitted with library and clubrooms, the industrial worker—shy, tired, and slow at first—shows a genuine interest in the humanities and in economic discussions. The study-circle method by which the initiative should be taken by the student rather than imposed by the teacher or lecturer is of great value to the Swede, who is often heavy and passive in the classroom; though naturally much here, too, depends on the competency of the leader. Sometimes a series of lectures may be held, alternated by study circles in smaller groups to discuss points raised by the lecturer. But even with such a circle one may find the smartest discussion going on in the corridor during the ten minutes' break.

Sweden has long been a democratic country. But the worker does not smugly consider himself as good as anyone: he seeks stolidly and with all the means in his power to improve himself. He tends, at least in the elementary stages, to attach undue weight to mere information, but he has also a serious respect for the cultural. He cares for pictures and architecture, perhaps rather less for literature. Typists crowd the little exhibitions of modern art and criticize the sculpture and architecture of the towns. The man in the street knows something, too, of foreign achievement in science and letters.

Professor Douglass Remonstrates

The April *School Review* contained an article on "The Co-operative Guidance Movement" by E. G. Williamson, assistant professor and director of the University Testing Bureau at the University of Minnesota. The article was prepared as an answer to a warning of the dangers in the co-operative testing movement sounded by Professor Harl R. Douglass, of the University of Minnesota, in an article entitled "Some Dangers of the Testing Movement," which appeared in the January, 1934, issue of the *Journal of the National Education Association*, and in an article entitled "The Effects of State and National Testing on the Secondary School," which was published in the *School Review* for September, 1934. The April number carried also, in our section of "Educational News and Editorial Comment," an item on "The Pros and Cons of Co-operative Testing," the major portion of which reproduced a communication received from Superintendent J. A. Hughes, of Red Lake Falls, Minnesota.

Professor Douglass is now of the belief that Professor Williamson and Superintendent Hughes have attributed to him, directly or by

implication, certain statements or points of view to which he has never given expression and with which he does not wish to be associated. Desirous of correcting in the minds of readers of the *School Review* these "erroneous implications," Professor Douglass has submitted a brief statement, captioned "Co-operative Testing and Straw Men," which we quote here in full as both a continuation and a conclusion (as far as the *School Review* is concerned) of the Minnesota controversy.

I had thought that I had written my last article or communication relative to the unfortunate consequences of state-wide or co-operative testing movements by means of which schools or teachers may be compared on the basis of the scores of their pupils. In several articles I have called attention of school people to the seemingly inevitable stimulus that such projects give to overemphasis on outcomes which are measured by the written tests now available. I have come to believe that, if my position is sound, I need do no more and that there would be others to carry on.

In the April *School Review*, however, is an article by my colleague and friend, Professor E. G. Williamson, and a communication from another fellow Minnesotan, Mr. J. A. Hughes, superintendent of schools at Red Lake Falls, in both of which my point of view has been unfortunately and somewhat gratuitously misinterpreted, and some sort of answer or correction seems appropriate.

In summarizing my criticisms of the Co-operative Test Service scheme, Professor Williamson attributes to me a protest that "curriculums will become 'frozen.'" I have not employed those words and have not meant to give that impression. What I have said is that the tests will influence in undesirable ways the content and relative emphasis within the curriculum. In fact, it is quite possible that "freezing" the present curriculum would be preferable to changes most likely to be effected by this type of abuse of testing.

There are many items of merit in Professor Williamson's discussion, but his scientific disinterestedness could have been made more obvious had he mentioned, in addition to results which favor the use of co-operative testing for the purposes of guidance, results of studies by Professor C. W. Boardman, a colleague of ours, which show that high-school marks from certain Minneapolis high schools, where marking is on a superior basis, yield larger coefficients of correlation with college success than the multiple coefficients involving the Co-operative Tests reported by Professor Williamson.

Superintendent Hughes, in his communication to the editor of the *School Review*, constructed a most defenseless straw man and annihilated it very effectively. Among the critics of testing I have never discovered one who believes as Mr. Hughes seemed to think I believe, namely, that facts are not worthy of great attention and emphasis in the schools or that ideals, attitudes, and interests can be soundly developed without the use of factual material. If there

is a "present-day educational philosophy" which is based on either or both of the above untenable premises, evidence of its existence has thus far escaped my notice. There is, however, a distinctly growing conviction that facts, alone, are not enough, that they are at present relatively overemphasized in the classroom, and that such testing programs as the Co-operative Test Service is promoting will aggravate this untoward condition. This attitude is quite a different point of view.

As suggested by the editor of the *School Review*, the contributions of Professors Tyler and Buros in developing methods of measuring the so-called "intangible" and heretofore unmeasurable outcomes of instruction promise a substantial advance in the desired direction. When the time arrives that we are able to measure all the more important outcomes of instruction in such a manner as not to influence the efforts of teachers in undesirable ways, the efforts of the Co-operative Test Service and of all other agencies or individuals promoting co-operative measurement should receive the co-operation and blessing of all school people. Until then it is to be hoped that we shall not commit ourselves to uses of tests likely to discredit the measurement movement, which is, perhaps, the most significant single contribution to educational techniques.

The Co-operative System Interpreted by Its Originator

Reference has previously been made in this section to the possibilities and promise of the co-operative plan of training at the secondary level—a plan which joins part time spent in school with part time in employment. As is rather generally known, this plan was originated at the college level, specifically in the College of Engineering at the University of Cincinnati, by Dean Herman Schneider of that institution. In celebration of "thirty years of educational pioneering," Dean Schneider has prepared a statement of "the philosophy of the co-operative system and its practical test," which has been published by the University of Cincinnati. The educational worker at the secondary level should find it illuminating to consider the applicability of the elements of the statement to co-operative plans in schools below the college.

Summarizing this philosophy, Dean Schneider says that "the major idea underlying the co-operative system is that of balanced training to insure the highest attainment through the skilled use of all of the factors involved—theory, men, materials, methods, and mechanisms." He speaks also of many beneficial by-products of the system:

It conserves time. By reason of the alternation of theoretical work and practical work, the student can carry a heavier load of studies per period than would be possible if he attended school full time. At graduation from the five-year co-operative course our student has covered more theoretical work than a student does in the four-year full-time courses. This has been established by an investigation, covering the leading engineering colleges of the country, made by Professor William T. Magruder, of Ohio State University, and published in the bulletin of the Society for the Promotion of Engineering Education, October, 1933. In addition, the co-operative student has been given 5,500 hours of sequential training in his field of practice, a training organized by the College as carefully as its curriculum and co-ordinated with the theory taught. Hence the co-operative student is as far advanced at the end of five years as the regular student is at the end of eight years. Further, the co-operative student's practical training has covered a broader field, and his theory has been given many hitching posts in his mind. His groundwork is more amply and more thoroughly established.

The plan is economical. In the co-operative system, only one-half the students are in college at one time; hence only one-half the normal teaching space is required for the total student enrolment. For example, our registration is 1,647; our buildings therefore need accommodate about half this number. There is further an additional saving in equipment for the engineering laboratories, since these laboratories devote their time to distinctly scientific experiments and not to practical demonstrations; the latter become a part of the outside industrial work under real conditions.

The money earned on practical work enables many young men of brains and backbone but without funds, to go to college—which is as it should be, especially in a democracy.

A student's fitness for his chosen profession is much more easily judged under the co-operative system than under the regular system. His experience in actual engineering work and his contacts with other students in many different phases of training give him a real picture of what engineering is, rather than one drawn from popular magazines and movies, with the subsequent disillusionment when the hard grind is faced.

A trained critical mentality is desirable; but, if it lacks hard contact with life, it frequently runs wild, errs in its conclusions, and sometimes becomes maudlin. Training in the constructive faculty gives it steadiness. Life becomes a search for the workable mean; a critical plus a constructive quest for the best answer attains the highest possible good. The co-operative system gives co-ordinated training and experience in both. For example, our discussions in the field of labor economics are held in the fifth year, prior to which time our students have been laborers, mechanics, and minor executives. A background of experience such as this adds immeasurably to the reality and the value of the discussions and to the critical judgments of the students on the theories presented. Similarly in mechanical engineering, students who have worked on the various machine tools, such as the lathe, milling machine, drill press, grinder, and so on, do not

need to study a voluminous textbook to tell them what these machines can do and what their many parts are. Hence when the theories of machine design are approached in the third year, no long descriptive courses are necessary. This conserves much curriculum time. In addition, the student engineer understands the introduction of the proper factors of safety necessary when theory must be expressed through materials and men.

Under the co-operative system, teaching the theory only (plus certain cultural courses) is the function of the school; teaching the practice of engineering is the function of industry. Practice can be learned only where the thing is practiced.

Finally, there is a by-product of the co-operative system which defies phrasing. To sense it, one must live with the system in operation. It is a quality that comes from being required to face the day's work squarely and successfully. It comprises the development of a silent strength of will combined with honest judgment rather than captious criticism. A Freshman in a large organization or on the building of a bridge learns quickly how little he knows. He gets the value of clear-cut knowledge as against fluid generalizations. His perspectives begin to lose their distortions. He finds a new basis for the value of money in work done. But above all, he realizes that in engineering you don't evade the thorough doing of things—you can't "just get by"; you don't try to slide around a disagreeable but necessary task—you fool only yourself. The co-operative system teaches an engineer to do his best naturally and as a matter of course. Also it teaches him that you can't trick basic laws.

It is a good thing for a man to sweat his way toward the truth.

Motion Pictures and Youth

The Bureau of Educational Research of the Ohio State University has recently distributed two mimeographed publications relating to motion pictures and youth of school age. One of these reports is "A Panel Discussion of Motion-Picture Appreciation" by high-school pupils and teachers in the Oakland, California, public schools. The discussion was developed as "the high point of a conference which climaxed a semester's experience with the teaching of motion-picture appreciation in five high schools . . . . last year." The project is referred to as a joint undertaking of the Payne Fund, the California State Department of Education, and the Oakland schools. Textbooks and teaching manuals had been furnished by the Payne Fund. The project was directed by Edgar Dale, of the Bureau of Educational Research at the Ohio State University, and Doris E. McEntyre, who is supervisor of English and dramatic art in Oakland. The experimental classes were supervised by I. Keith Tyler.

The other publication bears the title "Your Child and the Motion

Picture" and reports a group of radio talks for parents and teachers. The broadcasts were made by California educators over California stations.

The significance of the two publications derives from the fact that the addresses and the content are not purely speculative and theoretical but have been largely distilled from experience and experiment in the field.

The Institute for Administrative Officers of Higher Institutions

The Institute for Administrative Officers of Higher Institutions will be held in the Lounge of Judson Court, the University of Chicago, on July 10, 11, and 12, 1935. A most cordial invitation to attend is extended to administrative officers of all higher institutions, including liberal-arts colleges, universities, teachers' colleges, and junior colleges. Arrangements have been made for those who attend the institute to visit classes and to enjoy other University privileges without the payment of fees. Room and board will be provided in the dormitories adjacent to the conference rooms from Wednesday morning, July 10, to Friday evening, July 12, for $8.50. Reservations may be made through William J. Mather, Bursar of the University of Chicago. For additional information address William S. Gray, Department of Education, University of Chicago.

The central theme of the institute will be "The Academic and Professional Preparation of Secondary-School Teachers." This topic was selected because of the widespread interest which has been expressed recently throughout the country in the nature and the scope of the preparation appropriate for effective secondary-school teaching. The chief topics which will be discussed at each session of the institute follow.

Wednesday Morning, July 10

"Recent Trends in American Secondary Education," M. H. Willing, Professor of Education, University of Wisconsin

"Present Status of the Preparation of Secondary-School Teachers," Thomas E. Benner, Dean of the College of Education, University of Illinois

Wednesday Afternoon, July 10

"Fundamental Issues Involved in Determining Where Secondary-School Teachers Should Be Prepared," Henry Klonower, Chief of the Teacher Division, Department of Public Instruction of the Commonwealth of Pennsylvania

"Selective Admission and Promotion of Prospective Secondary-School Teachers," Frank E. Baker, President of the State Teachers College, Milwaukee, Wisconsin

EXPERIMENTAL PROGRAMS IN PREPARING SECONDARY-SCHOOL TEACHERS

Thursday Morning, July 11

a) "The Basic Aims, Scope, and Organization of the Curriculum, New College, Teachers College, Columbia University," Thomas Alexander, Chairman of New College for the Education of Teachers, Teachers College, Columbia University

b) "The Organization and Administration of Teacher Education at the University of Chicago," Henry W. Prescott, Professor of Classical Philology; Chairman of the Committee on the Preparation of Teachers, University of Chicago

c) "Oaganization, Administration, and Objectives in Teacher Education at Ohio State University," George F. Arps, Dean of the College of Education, Ohio State University

Thursday Afternoon, July 11

d) "The Program of Teacher Education at New Jersey State Teachers College, Montclair, New Jersey," H. A. Sprague, President of the New Jersey State Teachers College, Montclair, New Jersey

e) "The Preparation of Teachers at William and Mary College," K. J. Hoke, Dean of the College of William and Mary

f) "The Two-Year Program for the Preparation of Secondary-School Teachers at Harvard University," Howard E. Wilson, Assistant Professor of Education, Harvard University

BASIC CURRICULUM ISSUES

Friday Morning, July 12

a) "The Place of General and Liberal Education in the Preparation of Teachers," Hayward Keniston, Professor of the Spanish Language, University of Chicago

b) "The Breadth and Depth of Preparation in Specific Teaching Fields," Edith P. Parker, Assistant Professor of the Teaching of Geography, University of Chicago

Friday Afternoon, July 12

c) "The Nature and Scope of the Professional Preparation of Secondary-School Teachers," Raleigh Schorling, Professor of Education, University of Michigan

d) "The Cultivation of Essential Personal Qualities," Ralph Noyer, Dean of the Ball State Teachers College, Muncie, Indiana

"Summary of the Institute," William S. Gray, Professor of Education; Executive Secretary of the Committee on the Preparation of Teachers, University of Chicago

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TEACHING COMBINATIONS: REDUCTIO AD ABSURDUM

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Many of the teaching positions in the high schools have become so highly specialized that few, if any, well-qualified teachers will ever be available to fill them. This condition is due to the fact that the combinations of subjects now assigned to many of the positions are so unusual and so infrequent that no program of teacher training can hope to supply the demand which they represent. They can frequently be filled only by taking teachers with inferior qualifications. As a consequence, then, of the high degree of specialization of many positions, efforts to raise the standards for teachers are being defeated, at least in a measure. These efforts can never be completely successful until drastic steps have been taken to standardize and to simplify the combinations of subjects assigned to teachers. These, briefly, are the general conclusions to be drawn on the basis of the study reported in the following pages.[1]

The study is based on the combinations of subjects taught during the first semester of the school year 1931–32 by 3,490 teachers in the 525 public four-year high schools in the state of Illinois which had no more than twenty teachers and which were accredited by the University of Illinois. Part-time teachers and administrators doing part-time teaching were omitted. The study included 84 per cent of all public high schools in the state. The data were obtained from the files of the High School Visitor's Office of the University.[2] They

[1] Bibliographies of similar studies may be found in:

a) *Teacher Personnel.* Review of Educational Research, Vol. IV, No. 3. Washington: American Educational Research Association of the National Education Association, 1934.

b) Gilbert W. Betts, Benjamin W. Frazier, and Guy C. Gamble (Compilers), *Selected Bibliography on the Education of Teachers.* National Survey of the Education of Teachers, Vol. I. United States Office of Education Bulletin No. 10, 1933.

[2] The writer is indebted to Mr. E. M. Leamon of the Redmon, Illinois, High School for the collection of the data here presented.

embrace a total of twenty-nine subject groups, of which twenty belong in the group of so-called "academic" departments. Among the latter are included the sixteen subjects listed in Table IV, in addition to German, journalism, sociology, and Spanish, which were omitted from this report because each embraced only a small number of teachers.

COMBINATIONS OF TEACHERS OF HISTORY

Size and frequency of combinations.—The study included a total of 610 teachers who were giving instruction in courses in history. The distribution of the combinations of these teachers according to the number of teachers assigned to the combinations and the number of subjects comprising them is shown in Table I. History was included as one of the subjects in designating the size of the combinations. Thus, teachers who were giving instruction in history only were regarded as having a combination made up of one subject, those having a two-subject combination were teaching history and one other subject, and so on.

One of the facts revealed by Table I is that a large proportion of the teachers had "short" combinations, approximately half the entire group having combinations consisting of history only or history and one other subject. In the second place, some of the combinations were taught by large numbers of teachers. For example, there were three combinations which together included a total of 176 teachers, or 28.9 per cent of the entire group. Since the problem of supplying and securing teachers to meet demands is solved with relative ease when combinations are "short" and when they are assigned to large proportions of the teachers, the table reveals a favorable condition in many teaching positions.

On the other hand, certain facts which point to a contrasting situation should not be overlooked. Table I shows that many of the teachers of history were offering instruction in combinations which occurred only with rare frequency. Of the total of 186 different combinations, 127, or 68.3 per cent, occurred only once. Thus, each of 127 teachers, or 20.8 per cent of the entire group of 610, was teaching a combination of subjects which was different from that taught by any other teacher. Again, 168 combinations, or 90.3 per cent of the total number, were each taught by five teachers or less, and

these included 248, or 40.7 per cent, of all teachers of the subject. The fact that a large proportion of the positions represented combinations occurring rarely is highly significant, since the supply of teachers qualified for these positions is likely to be extremely limited. As a consequence, vacancies must frequently be filled with teachers who, though they possess the necessary subject-matter qualifications, are mediocre or even inferior in many other respects.

TABLE I

COMBINATIONS TAUGHT BY 610 TEACHERS OF HISTORY DISTRIBUTED ACCORDING TO NUMBER OF SUBJECTS IN THE COMBINATION AND NUMBER OF TEACHERS ASSIGNED TO THE COMBINATION*

Number of Teachers Assigned to the Combination	Number of Combinations with—						Total	
	One Subject	Two Subjects	Three Subjects	Four Subjects	Five Subjects	Six to Eight Subjects	Combinations	Teachers
1	0	4	43	52	20	8	127	127
2–3	0	2	20	7	0	0	29	68
4–5	0	3	8	1	0	0	12	53
6–10	0	4	4	0	0	0	8	56
11–20	0	2	2	0	0	0	4	57
21–40	0	2	1	0	0	0	3	73
41–70	1	2	0	0	0	0	3	176
Total: Combinations	1	19	78	60	20	8	186	.....
Teachers	51	252	207	72	20	8	.....	610

* This table is read as follows: Of the 610 teachers of history represented in this study, 252 were teaching two subjects, that is, history and one other. To these 252 teachers had been assigned a total of 19 different combinations of this size, the frequencies of which were as follows: four of these combinations were unduplicated among the teachers included in the study, two were taught by a total of either two or three teachers each, three were taught by a total of four or five teachers each, etc.

The table indicates also that some of the teachers had unusually "long" combinations. Thus, there were 88 combinations, or 47.3 per cent of the total of 186, which consisted of four or more subjects, these combinations being taught by 100 teachers, or 16.4 per cent of the entire group. Although these combinations were significant because of their length alone, it should be noted that they were likely also to be infrequent in occurrence. Thus, none of the combinations which consisted of four or more subjects was taught by more than five teachers, and the large majority of these combinations were

peculiar to a single position. These positions, then, represent a difficult angle of the problem of securing and supplying adequately trained teachers.

Departments combined with history.—The point might be raised that perhaps all but a few of the teachers of history had combinations which were so constituted that they could be built up by com-

TABLE II

DISTRIBUTION OF TWENTY-SEVEN SUBJECTS COMBINED WITH HISTORY ACCORDING TO NUMBER AND PERCENTAGE OF TEACHERS OF HISTORY HAVING THE SUBJECTS IN THEIR COMBINATIONS*

SUBJECTS COMBINED WITH HISTORY	TEACHERS HAVING THE SUBJECTS IN THEIR COMBINATIONS	
	Number	Per Cent
Chemistry, German, journalism, Spanish	1–2	0.2–0.3
Agriculture, sociology, speech	5–8	0.8–1.3
Botany, French, general science, geology, industrial arts, music, physics, physiology, stenography, zoölogy	12–21	2.0–3.4
Biology, commercial geography, commercial subjects, home economics	33–46	5.4–7.5
Physical education	61	10.0
Mathematics	70	11.5
Latin	116	19.0
Economics	120	19.7
Civics	146	23.9
English	148	24.3

* This table is read as follows: Each of four subjects combined with history (chemistry, German, journalism, and Spanish) was represented in the combinations of only one or two (0.2–0.3 per cent) of the 610 teachers of history.

bining a relatively small number of subjects in every possible way, a situation which is, of course, mathematically possible despite many infrequent combinations. The frequency with which history was found in combination with each of the other subjects is indicated in Table II. It should be noted that history was combined with all but one of the other twenty-eight subjects.

There was a small number of subjects each of which occurred in the combinations of a large proportion of the teachers, but there was a much larger number of subjects each of which had a relatively low

frequency of occurrence. There were seventeen subjects no one of which appeared in the combinations of more than twenty-one teachers, seven of these having frequencies of eight or less. The latter situation affords little incentive to a prospective teacher to prepare himself in any of these seventeen subjects in a combination with history. This group of subjects, however, had a combined frequency of 185, and, when the duplications resulting from the fact that in some cases two or more of the subjects appeared in the same combination are subtracted, it is found that these subjects affected the positions of 146 teachers of history, or 23.9 per cent of the total of 610. It follows, therefore, that a considerable proportion of the positions in the teaching of history required a combination which included one, and in some cases more, subjects that were infrequently combined with history.

The significance of the 146 positions just referred to may be made still clearer by a consideration of the following facts. Eighty-five, or 58.2 per cent, of these 146 positions involved combinations which were taught by only a single teacher each, and 117, or 80.1 per cent, involved combinations taught by not more than five teachers each, the total number of different combinations concerned being 102. Furthermore, 54 of these 146 positions, or 37.0 per cent, consisted of four or more subjects, and 119, or 81.5 per cent, contained three or more subjects. Many of these teachers, then, not only had to be prepared in some subject that led to but few positions in any kind of combination with history, but they also had to be qualified for a particular combination which occurred still more rarely and which included three or more subjects. There is, of course, little reason for expecting a prospective teacher to prepare himself for such positions. Furthermore, even should he desire to do so, it would be impossible for him to prepare himself for any large number of them because of the many subjects involved. It follows, therefore, that simply to secure for these positions teachers who possess appropriate subject-matter preparation—as is necessary in accredited high schools in the state of Illinois—to say nothing of other qualifications, can be no easy matter.

Relation of the subjects combined with history to the size of combinations.—The data in Table II indicate that the number of posi-

tions for which a prospective teacher of history will be qualified when he has prepared to teach any given subject in combination with history varies greatly from one subject to another. The question may be raised whether the number of positions open to him when he has selected any given subject in combination with history depends also on the total number of subjects in which he is prepared to offer instruction. The data necessary to answer this question were tabulated

TABLE III

PERCENTAGE DISTRIBUTION OF TEACHERS WHO COMBINE EACH OF TEN SUBJECTS WITH HISTORY ACCORDING TO THE NUMBER OF SUBJECTS IN THEIR COMBINATIONS*

SUBJECT	NUMBER OF TEACHERS COMBINING THE SUBJECT WITH HISTORY	PERCENTAGE OF TEACHERS HAVING COMBINATIONS CONSISTING OF—			
		Two Subjects	Three Subjects	Four Subjects	Five to Eight Subjects
Biology	42	14	36	43	7
Civics	146	19	44	23	14
Commercial geography	46	9	33	28	30
Commercial subjects	46	11	43	26	20
Economics	120	17	45	21	17
English	148	48	41	9	2
Home economics	33	36	40	18	6
Latin	116	47	39	12	2
Mathematics	70	13	49	28	10
Physical education	61	26	40	26	8

* This table is read as follows: There were 42 teachers who taught biology in combination with history, 14 per cent of whom taught two subjects; 36 per cent, three subjects; 43 per cent, four subjects; and 7 per cent, five or more subjects. History is counted as one of the subjects in each combination.

for each of the ten subjects most frequently combined with history, the results, expressed in percentages, being shown in Table III.

The percentages indicate clearly that the extent to which any one subject was found in combination with history frequently differed radically from one size of combination to another and furthermore that the extent to which the subjects entered into combinations of any given size often varied greatly from one subject to another. Thus, English and Latin occurred predominantly in two- and three-subject combinations with history, approximately half of the total frequencies in each case being confined to combinations with this

subject and nothing else. Commercial geography, on the other hand, rarely appeared in two-subject combinations but was distributed rather evenly over the other three categories of combinations shown. Again, civics was taught in combination with history almost as often as was English, but in the case of the former the combinations consisted much more rarely of two subjects and much more frequently of four or more subjects. Furthermore, economics was combined twice as often with history as was physical education, but the occurrences of these subjects in two-subject combinations (frequencies not shown in the table) were much more nearly comparable, 21 and 16, respectively.

The data just discussed signify clearly that the number of positions for which a prospective teacher will be qualified when he has specialized in any given subject in combination with history is a function, not only of the total number of teachers of history giving instruction in that subject, but also of the total number of subjects in which he is prepared to teach. In some cases qualification for a large number of positions could be attained by preparing in a single subject in addition to history, but in other cases preparation in a total of four and even more subjects would be necessary. As a consequence, the task of guiding students in teacher-training institutions in their selection of teaching subjects is enormously complicated. In this connection, one may note especially the concept of subjects or activities of high degrees of "dominance," an expression which is used to designate the subject or subjects having a high frequency of combination with a given subject. Data pertaining to this matter have frequently been suggested for use in guiding prospective teachers. The data discussed in the preceding paragraph show clearly that such a procedure, especially when employed without the use of further facts, becomes of doubtful value.

COMBINATIONS TAUGHT BY TEACHERS OF SIXTEEN ACADEMIC SUBJECTS

The conditions revealed with respect to the combinations in the subject of history are so chaotic that it is important to consider whether the situation is representative of other subjects. Table IV shows for each of sixteen academic subjects the percentage dis-

tribution of the teachers according to the size of their teaching combinations. The table indicates that, except in the case of English, French, Latin, mathematics, and speech, one-half or more of the teachers of each subject were called on to give instruction in three or more subjects. Combinations consisting of four or more members occurred with high frequency in many subjects, but in a few, notably English, French, and Latin, the combinations rarely included more

TABLE IV

PERCENTAGE DISTRIBUTION OF TEACHERS OF EACH OF SIXTEEN SUBJECTS ACCORDING TO NUMBER OF SUBJECTS WHICH THEY TAUGHT

SUBJECT	NUMBER OF TEACHERS OF THE SUBJECT	PERCENTAGE OF TEACHERS TEACHING—				
		One Subject	Two Subjects	Three Subjects	Four Subjects	Five to Eight Subjects
Biology	294	3	35	39	19	4
Botany	65	0	6	25	41	28
Chemistry	155	2	37	44	14	3
Civics	224	1	20	41	24	14
Economics	200	0	20	44	21	15
English	1,026	33	44	18	4	1
French	131	4	58	35	3	0
General science	397	3	37	38	18	4
Geology	85	2	16	37	26	19
History	610	8	42	34	11	5
Latin	501	6	65	22	6	1
Mathematics	719	23	37	26	11	3
Physics	305	0	30	47	18	5
Physiology	110	4	25	34	30	7
Speech	49	4	59	27	6	4
Zoölogy	84	0	11	28	40	21

than three subjects. Comparisons with history show, in general, that, although the distribution was more favorable for some subjects than it was for history, for most of the subjects it either was no better or was worse.

The data in Table V show that most of the sixteen academic subjects entered into combination with large numbers of other subjects. Thus, eleven of the sixteen were each combined with a total of twenty-three or more other subjects, whereas only one was combined with less than nineteen. Furthermore, the data indicate a strong tendency for any subject which was combined with a relative-

ly small number of others to have but few teachers and for a subject which was combined with nearly all the others to have a much larger number of teachers. Only the restriction of the number of positions in a subject, therefore, prevented it from becoming combined with all, or almost all, the others. The rank correlation between the number of teachers of each of these subjects and the number of subjects with which it was combined was +.78. This close relation indicates that, in the case of a subject which was combined with relatively few others, this advantage was likely to be offset by the fact that an un-

TABLE V

SIXTEEN ACADEMIC SUBJECTS DISTRIBUTED ACCORDING TO NUMBER OF TEACHERS OF EACH AND TOTAL NUMBER OF OTHER SUBJECTS WITH WHICH EACH WAS COMBINED

Number of Other Subjects with Which the Subject Was Combined	Number of Subjects with—					
	45–99 Teachers	100–199 Teachers	200–349 Teachers	350–749 Teachers	750–1,049 Teachers	Total
17–18	0	1	0	0	0	1
19–20	2	1	0	0	0	3
21–22	1	0	0	0	0	1
23–24	1	1	2	1	0	5
25–26	0	0	2	1	0	3
27	0	0	0	2	1	3
Total	4	3	4	4	1	16

usually small number of teachers were offering instruction in the subject. It follows, then, that most of these subjects were combined with unduly large numbers of others, just as was the case with history.

The average number of different combinations found for the sixteen subjects was 97; the lowest number, 20; and the highest, 186. Although these data are interesting, the average number of teachers per combination is much more significant. It is obvious from Table VI that for most subjects the ratio of teachers to combinations was low; that is, most of the combinations in the large majority of the subjects were taught by but a few teachers each, and many combinations were peculiar to a single position. This conclusion is sub-

stantiated further by the fact that the rank correlation between the number of teachers of each of the sixteen subjects and the number of combinations taught by them was +.89. Thus, it is clear that the number of different combinations into which any one subject entered was limited only by the number of teachers which it contained. The ratio of teachers to combinations in the case of history was 3.3, which, according to Table VI, was higher than that of eleven of the other fifteen subjects. In this respect, as well as in the aspects discussed earlier, history is fairly representative of most of the other academic subjects.

TABLE VI

DISTRIBUTION OF SIXTEEN ACADEMIC SUBJECTS ACCORDING TO AVERAGE NUMBER OF TEACHERS PER COMBINATION

Average Number of Teachers per Combination	Number of Subjects
1.0–1.4	4
1.5–1.9	2
2.0–2.9	5
3.0–3.9	1
4.0–5.9	3
6.0–7.9	1
Total	16

It seems clear, then, that history is roughly representative of a large majority of the academic subjects included in this study, and it appears justifiable to generalize from this one subject for the others; that is, the assumption may be made that conditions with regard to teaching combinations were, in general, about as bad in the case of most of the other subjects, perhaps somewhat worse in a few, and considerably better in the few remaining subjects.

CONCLUSIONS

The conditions found in this study have a number of serious implications, particularly in connection with the selection of teaching subjects by prospective teachers and with the matter of supplying or securing qualified teachers for many of the combinations now existing. In general, it is clear that the students who must make a selection of teaching subjects and the institutions which attempt

to advise prospective teachers are faced with an almost hopeless and impossible task. As long as the conditions now existing maintain, it will not be possible to train many teachers for some of the combinations now found, and for many others few, if any, teachers will ever be qualified. As a consequence, when a vacancy on a high-school staff is to be filled, the list of applicants who possess the necessary subject-matter qualifications may be small indeed. Since the choice of the new teacher must be restricted to those who meet these qualifications, all the generally desirable candidates may be eliminated from consideration, and the selection may have to be made from a group of applicants none of whom is well qualified in any respect other than mere preparation in the teaching combination. Not only may the choice be restricted to a very few applicants; it may even be limited in such a way that subject-matter preparation is the only type of qualification which can be considered. Any efforts, then, to raise the standards of teachers are defeated, at least in a measure; both the school and the generally superior candidates become the victims of the chaotic conditions.

In view of the evidence which has been presented and of its implications, the conclusion is inescapable that the picture afforded by this study of teaching combinations is one of all but complete chaos. It exhibits almost a total absence of any degree of simplification or standardization of procedures in assigning teaching combinations. It portrays practically unlimited diversity of practices in selecting the combinations of subjects which teachers are asked to teach. So chaotic are the conditions here presented that they can hardly be regarded as representing anything other than the height of absurdity in educational practices. Fortunately, the North Central Association of Colleges and Secondary Schools recently took recognition of the problem and appointed a committee to study the matter.[1] The importance of giving attention to this problem was strongly emphasized as early as 1919,[2] but in spite of the fact that sixteen years have since elapsed, much still remains to be accomplished.

[1] "New Studies," *North Central Association Quarterly*, IX (July, 1934), 4.

[2] Leonard V. Koos and Clifford C. Woody, "The Training of Teachers in the Accredited High Schools of the State of Washington," *The Professional Preparation of High-School Teachers*, pp. 213–57. Eighteenth Yearbook of the National Society for the Study of Education, Part I. Bloomington, Illinois: Public School Publishing Co., 1919.

THE PROFESSIONAL LOAD OF TEACHERS IN THE SECONDARY SCHOOLS OF IOWA

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Sources of data.—The data employed in this survey were gathered from two sources: (1) the files of the State Department of Public Instruction at Des Moines, Iowa, and (2) replies to questionnaires sent to the principals and the superintendents of a selected sample of high schools in Iowa.

Data were obtained concerning schools of three sizes. Group I included schools in which more than 500 pupils were enrolled. In this group were 8 of the 28 schools of this size in the state, and data concerning 290 teachers in these 8 schools were obtained. Group II included schools in which from 201 to 500 pupils were enrolled. The 275 teachers included in this study from these schools were employed in 21 of the 84 institutions of this size in the state. Group III included schools in which 200 or fewer pupils were enrolled. The 280 teachers, data concerning whom were obtained, were employed in 38 of the 617 schools of this size in the state. In all, data were obtained concerning 845 teachers in 67 schools of various sizes and in various sections of the state. A summary of the data is presented in Table I.

Number of class periods taught weekly.—As is indicated in Table I, teachers in the larger schools, on the average, teach fewer periods a week than teachers in smaller schools. Though the difference between the averages for the large and the small schools is as great as 4.2 periods a week, almost a fourth of the teachers in the small schools teach fewer periods a week than the average for the large schools, and almost a fourth of the teachers in the large schools teach as many periods as the average teacher in the small schools.

Noteworthy differences exist among the average number of weekly

TABLE I

DATA CONCERNING TEACHING LOAD OF SECONDARY-SCHOOL TEACHERS IN IOWA

TEACHERS OF—	NUMBER OF TEACHERS	LOWER QUARTILE	MEDIAN	AVERAGE	UPPER QUARTILE
	Number of Class Periods Taught Weekly				
Large schools	290	20.1	24.7	23.4	25.2
Medium-size schools	275	23.0	25.1	25.8	29.7
Small schools	280	24.7	27.3	27.6	30.2
	Weekly Number of Class Periods in Subject-Matter Fields				
Commercial subjects	67	24.8	29.5	28.8	34.7
Home economics	49	24.7	29.8	28.1	30.4
Manual arts	26	24.9	26.0	27.9	30.3
Mathematics	60	24.6	25.0	25.2	25.5
Foreign languages	31	24.6	25.0	24.8	25.3
Science	39	21.2	24.8	24.7	27.8
Social studies	71	20.2	24.8	23.8	25.3
English	122	20.2	24.8	23.7	25.3
Miscellaneous	65	20.2	24.0	24.1	29.1
All teachers	530	20.4	25.0	25.4	29.6
	Number of Different Subject Preparations Made Weekly				
Large schools	290	9.6	10.2	11.1	14.8
Medium-size schools	275	10.3	15.1	15.7	20.0
Small schools	280	15.4	19.9	22.1	19.1
	Number of Different Subject Preparations Made Weekly by Teachers of Various Major Subjects (Including Major Subject)				
Major subject:					
Foreign languages	31	15.0	19.8	18.4	20.3
Commercial subjects	67	14.0	19.8	18.1	20.4
Home economics	49	10.4	15.3	16.0	19.9
Manual arts	26	10.0	14.8	14.2	17.0
Social studies	71	9.6	10.4	13.5	15.1
Mathematics	60	9.9	14.6	13.4	15.4
English	122	9.8	10.5	13.3	15.4
Science	39	9.8	14.7	13.2	15.4
Miscellaneous	65	10.3	16.2	16.9	22.9
All teachers	530	10.1	14.9	14.9	19.9

TABLE I—*Continued*

Teachers of—	Number of Teachers	Lower Quartile	Median	Average	Upper Quartile
	Number of Periods Spent Weekly in Supervision of Study Halls, Libraries, and Home Rooms				
Large schools	200	0.02	2.6	3.1	5.0
Medium-size schools	150	0.1	4.5	3.9	5.3
Small schools	118	3.0	5.0	5.1	8.0
All teachers	468	0.1	4.6	3.9	5.3
	Number of Pupils Taught Daily				
Large schools	200	110	129	127	147
Medium-size schools	194	95	112	111	129
Small schools	134	77	93	95	115
All teachers	528	92	117	113	138
	Number of Pupils Taught Daily by Teachers of Various Major Subjects				
Major subject:					
Mathematics	60	108	124	122	138
Social studies	71	106	122	122	143
English	122	96	117	120	133
Science	39	99	116	119	138
Commercial subjects	67	89	113	115	139
Manual arts	26	88	118	114	136
Foreign languages	31	81	104	103	117
Home economics	49	89	99	102	118
Miscellaneous	64	90	115	112	140
All teachers	529	92	117	113	138
	Teaching Loads Determined by Formula with Subject Coefficient				
Large schools	199	26.3	28.6	28.7	31.5
Medium-size schools	150	26.1	28.4	28.3	30.8
Small schools	101	25.2	28.4	28.1	30.6

TABLE I—*Continued*

Teachers of—	Number of Teachers	Lower Quartile	Median	Average	Upper Quartile
	Teaching Loads of Teachers of Various Major Subjects Determined by Formula without Subject Coefficient				
Major subject:					
Commercial subjects	56	27.7	29.8	29.5	31.6
Manual arts	22	26.9	28.5	29.0	31.8
Mathematics	53	26.7	28.1	28.3	29.9
Foreign languages	26	27.1	28.3	28.1	29.6
Home economics	41	25.1	27.4	27.9	30.7
Social studies	65	25.8	27.5	27.3	29.7
Science	33	25.1	27.7	27.1	29.5
English	103	25.0	26.9	26.9	29.4
All teachers	399	25.7	27.8	27.8	30.2
	Teaching Loads of Teachers of Various Amounts of Experience				
Years of experience:					
1–3	92	26.0	28.3	28.3	30.8
4–6	77	25.6	28.1	27.9	30.4
7–9	46	23.7	27.1	26.9	29.9
10 or more	90	25.4	27.1	27.1	28.8

periods taught in various subject-matter fields, although there is again much overlapping. The conspicuous homogeneity among the teachers of foreign languages and mathematics reflects the relatively standard practice of assigning a teacher in these fields five classes daily.

Number of subject preparations.—As would be expected, teachers in small schools are assigned more diversified subject fields. The teachers in the small schools teach in approximately twice as many different subjects as those in the large schools, there being only a small degree of overlapping. The differences between subject-matter groups are also noteworthy.

Number of periods spent in supervising study halls, libraries, and home rooms.—In addition to the classroom load, Iowa teachers spend, on the average, approximately three periods a week in the large schools and five periods a week in the small schools at work in study

halls, libraries, and home rooms. With respect to this type of load there is, as the tabular distributions reveal, great variation among the schools of each size group.

Pupil load.—Whatever may be the relation or the lack of relation between teaching load and the number of pupils taught daily, the teachers in the large schools teach many more pupils daily than do those in the small schools. There are also great variations among teachers of different subjects. For example, teachers of home economics and foreign languages teach materially fewer pupils than instructors in other subjects—a condition dictated not by economy but by the incidence of the large number of small sections in these fields.

Total load.—No one aspect or factor of the teaching load may be taken as an entirely accurate measure of the teaching load, although the number of class periods is a serviceable, but after all a rough, makeshift. The number of pupil-periods or "pupil-clock-hours" is a distinctly less valid measure and has enjoyed only limited use. As a much more complete and accurate measure of the load of Iowa teachers, the Douglass teaching-load formula was employed in the following form.[1]

$$TL=SC\left(CPW-\frac{2Dup}{10}+\frac{NPW-20CPW}{100}\right)\left(\frac{PL+55}{100}\right)+\frac{PC}{2}\left(\frac{PL+55}{100}\right)$$

TL is teaching load.

SC is subject coefficient.

CPW is number of class periods taught weekly.

Dup is number of class periods spent weekly in teaching classes for which the preparation is similar to that for some other section, not including the original section.

NPW is number of pupils taught weekly.

PL is length of period in minutes.

PC is number of periods spent weekly in study halls, home rooms, extra-curriculum activities, or other co-operation.

To offset the differences in load involved in different fields, the Douglass formula involves the use of the following subject coefficients: 1.1 for English, science, and history and social studies;

[1] For explanation of the formula, see Harl R. Douglass, *Organization and Administration of Secondary Schools*, pp. 114–21. Boston: Ginn & Co., 1932.

0.9 for all laboratory subjects, such as household arts, manual and industrial arts, bookkeeping, and typewriting; 0.8 for music and physical education; and 1.0 for all other subjects.

When the load is expressed in terms of the formula units, there are no significant differences between groups of schools of different sizes. For any given group the differences between the lower and the upper quartiles approximate one "normal" class period a day.

The teaching loads borne by teachers of different fields do not vary greatly; the differences among fields are not so great as the differences between the lower and the upper quartiles within the subject groups.

Teaching loads of men and women.—No noteworthy differences between the teaching loads of men and the loads of women were found for any size group nor for the total sample.

Load and experience.—A significant condition is brought to light with regard to the relative loads of teachers of varying amounts of experience. While there are small differences and much overlapping between groups, a most questionable practice is indicated by the fact that teachers of lesser experience actually carry greater loads than do their more experienced colleagues.

THE USE OF MONTHLY BULLETINS IN TEACHING ECONOMICS

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With the tide of protest against the destructive forces of the depression, educators have shown a strong tendency to resurrect the courses in economics and to remodel and revitalize them. The new courses are in strong contrast with those of the pre-depression type. The old courses glossed over the ugly aspects of the economic order, but the new courses raise and expose those aspects for the consideration of the students. The pre-depression courses were inclined to follow a rather lofty, theoretical, and impractical path; the new courses strive above all to keep grounded in actual problems. The explanation for these differences probably lies in the facts that in pre-depression days the doctrine of the "natural laws" of economics was generally accepted and that the doctrine of laissez faire gave a valid interpretation to much which economic criticism in those days easily confounded with socialism or with communism. Consequently, the pre-depression courses were cultural rather than practical; they were better described as a sort of intellectual exercise rather than a rock-ribbed necessity. The new conception of the objectives of the course in economic problems involves what too few educators have yet recognized—a teaching program much broader than the limits of any one textbook or any group of textbooks. Today the teacher of economics must be a resourceful student in his own right, regarding the textbook as a point of departure for exploring expeditions into the current problems continually being produced by the rip tides of contradictory economic forces.

Among the varied sources on which the teacher should draw for information bearing on the problems of economic life are current periodicals, newspapers, records of congressional debate, reports of hearings on proposed legislation, reports of congressional and state

legislative investigations, and departmental reports. In addition there are various monthly bulletins which are published by private and governmental agencies and which may be regularly received at no cost to the teacher. For the sake of clarity the monthly surveys to be discussed in this article are classified in three groups: (1) those issued by the United States Bureau of Labor Statistics, (2) those prepared by the Division of Statistics of the Massachusetts Department of Labor and Industries, and (3) the review of the Federal Reserve Bank of Boston.

Space permits an examination of only three of the several reports issued by the United States Bureau of Labor Statistics. Those three are concerned with employment and pay-roll statistics, wholesale prices, and retail prices. Throughout these reports the facts collected by the bureau for each industry have been reduced to weighted index numbers. The survey on employment and pay-roll statistics includes data on all the important industries in the country. Information concerning related industries is grouped together, for instance, the automotive industries, the iron and steel industry, the boot and shoe industry, the clothing industries, the woolen industry, and the food-products industries. The report on wholesale prices contains index numbers on such groups as farm products, foods, fuel and lighting, building materials, and metals and metal products. In a similar manner the survey of retail prices gives prices for groups of articles, such as meats, grain products, fruits, and milk products.

The Massachusetts reports deal with employment and earnings. The absolute figures, as well as index numbers derived from the figures, are included in most of these reports. Each month several reports are issued, two of which are here given consideration. The survey on "Employment and Pay Roll Earnings in Manufacturing Establishments" presents three interesting tables. The first summarizes the employment data for thirty-seven selected industries, stating in each instance the total number of persons employed in a specified week during the two latest months, pay-roll data covering the same period, and the average weekly earnings. The second table gives the total number of persons employed and the average weekly earnings (in dollars and cents) in the twenty-six leading industrial cities in Massachusetts. The third table contains the index numbers

of the amount of employment in representative manufacturing establishments, including boots and shoes, bread and other bakery products, cotton goods, paper and wood pulp, printing and publishing, textile machinery, and woolen goods. The second Massachusetts survey is on "Employment and Pay Roll Earnings in Leading Cities." The cities included are Boston, Brockton, Cambridge, Fall River, Lawrence, Lowell, Lynn, New Bedford, Pittsfield, Springfield, and Worcester. The major industries of each city are grouped into manufacturing, trade, public utilities, building, and municipal-employment groups. The report for each industry within these units states the number of establishments, the number of workers on the pay rolls, and the pay-roll totals during corresponding weekly periods in the two latest months.

The third report is the *Monthly Review* of the Federal Reserve Bank of Boston. This review describes the general situation in the New England district with particular reference to money and banking, electric power, carloadings, building, employment, boot and shoe manufacturing, textiles, and retail trade. The retail-trade review gives tables on the conditions of sales by states, by leading New England cities, by credit status, and by departments.

Teachers may obtain the United States bulletins by writing to the Department of Labor in Washington. These reports will be of use no matter where the teacher lives. A monthly report is published by each Federal Reserve Bank. If the teacher will write to the bank in his district, his name will be placed on its mailing list. The type of information contained in the bulletins of all the Federal Reserve districts is essentially the same. The bulletins issued by the Massachusetts Department of Labor and Industries are not duplicated by every state, but a number of states publish reports which the teacher can turn to advantage.

Statistics, in and of themselves, dismay young people. The preliminary problem, then, is to set up a situation demanding reference to the surveys; not until the pupils themselves feel the need for such information can progress in the use of the reports be made. One such situation would be to have the class study the organization and the objectives of the National Industrial Recovery Act. At this writing the question of the success or the failure of the NRA is being raised.

When the pupils in a class attempt to answer that question, the evidence in the various bulletins becomes decisively important. The class would like to determine whether the following objectives of the NRA have been achieved: expansion of employment, increase in total wages and in individual wages, higher wholesale prices and lower retail prices, increase in consumer buying power as represented by retail sales, increased carloadings, and increased commercial loans. To obtain the necessary information, committees of two or more pupils should be organized who will use the data of the federal reports and prepare graphic charts to illustrate actual trends of industry.

Nine specific suggestions for the use of these monthly bulletins are given in the following paragraphs.

1. Using the federal index numbers on employment, construct a chart showing (*a*) the general employment average for the whole country and (*b*) the employment in key industries, such as foods, iron and steel, and automobiles. The comparisons made possible will reveal the irregular responses to the NRA program. The explanation of those irregularities can be made the backbone of a class investigation which will call forth study of such industrial problems as seasonal industries, the interdependence of industries, the differences between the luxury and the necessity industries, and the relation between the heavy and the manufacturing industries.

2. Using the federal employment and pay-roll indices, construct a chart showing the relation between employment and wages earned over a period of time in each of several selected industries. The important local industries may well be selected. A study of the chart will reveal whether pay-roll changes are due to employment changes and will indicate which industries are lagging in meeting the wage objectives of the NRA. The problem of seasonal industries will also be raised by the results shown.

3. Using the federal index of wholesale prices, construct a chart showing (*a*) the general average of wholesale prices and the prices of (*b*) farm products, (*c*) foods, (*d*) building materials, and (*e*) metals. Most important is the comparison between the trends in the prices of farm products and in the prices of foods. The meaning of diverging tendencies between these two groups should be carefully ex-

plained. The pupils should understand the significance of a rapid rise or fall in the price of farm products in comparison with the price of foods. The problem of the middleman can properly be raised in this connection. The changes in the price index of metals and metal products, many of which are practically under monopoly control, offer a splendid opportunity to raise the question of the relation between prices and profits.

4. Using the federal report, construct a chart which will indicate comparative changes in wholesale and retail prices. The class should be directed to find the reasons for, and the consequences of, the outrunning of wholesale prices by retail prices. Here, again, the NRA's success or failure may be discussed.

5. Using the Massachusetts figures of the number of wage earners in the state, construct a chart showing the distribution of workers in the various industrial occupations. Obviously, this chart will enable the class to understand the industrial organization in their own state.

6. Using the Massachusetts figures giving average weekly wages, construct a chart contrasting the wages in the five industries in the state paying the highest wages with those in the five industries paying the lowest wages. The problem of planes of living ought to find a place for development at this point. A group of pupils should be assigned the task of discovering why these differences in wage rates exist.

7. Using the Massachusetts figures on the average weekly wages, chart the wages paid in one selected industry located in several cities. The question of disparities in the wages paid from city to city should be investigated. By no means all the problems involved can be answered, but the inability to give complete explanations of the disparities does not kill the value of the attempt.

8. Using the Massachusetts figures on the average weekly wages, study the wages in an industry which dominates all others in one city and which is also found in other cities where the industries are diversified. The main problem here is: Is the worker benefited or hindered by diversification?

9. Using the Federal Reserve Bank bulletin, chart the sales of selected luxury and necessity articles in department stores. This report will show the tendency of the two classes of goods to respond to

business advances and regressions and will also indicate something of the buying power of the people, which in turn relates back to employment.

These suggestions describing nine of a great number of studies that can be made are illustrative of the values that can be derived from using these types of data. It would not be advisable for one class to be working on more than three or four charts at a time. It is doubtful whether it ever would be wise to have all the charts made by committees from one class, because the reports of contradictory trends from several committees might create such hopeless confusion in the pupils' minds that it would be disastrous to their future interest in graph work. The members of committees making continuous charts following trends from month to month ought to be changed after two or three months. The duties of these committees are to receive the bulletins from the teacher as they arrive, to keep their charts up to date, to study the changes and the interpretations officially given to explain the changes, and to report to the class both the changes and their significance.

The values accruing to the pupils from this type of work are manifold. The members of the class are brought face to face with the actual economic forces and conditions surrounding them. The pupils will acquire skill in interpreting statistical information. The value of reducing tables of figures to graphs will be understood. The class will discover the importance of studying graphs in order to appraise government policies. Thus, when government plans, such as those embodied in the Bankhead cotton bill, the Agricultural Adjustment Act, or the National Industrial Recovery Act, are being reviewed, the basic information in the charts may be intelligently used by the class. The committee members will not only cease to be frightened by statistical data, they will acquire an interest in, and the habit of critical examination of, the charts made by others within the class or the charts published in the newspapers. The work has definite possibilities in vocational guidance, since pupils attaining familiarity with the average weekly wages paid in most industries cannot fail to take into consideration their own future vocation. Lastly, the work will tend to destroy the veil of economic ignorance that has surrounded American youth.

VOCABULARY GROWTH IN AMERICAN HISTORY IN THE SECONDARY SCHOOL

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PROCEDURE OF THE STUDY

A number of investigations have studied the technical vocabularies of the textbooks most frequently used in teaching American history in the high school. Among the most comprehensive are those of Pressey,[1] of Hatch,[2] and of Barr and Gifford.[3] Each of these studies has identified between one and two thousand technical words the meanings of which the investigators consider important for the proper understanding of the textbook material. Pressey's history word list is based on the judgment of a number of readers. Of 1,086 words selected from twenty-three textbooks, 560 were regarded as essential and 526 as important. Hatch gives a list of 1,082 difficult, important words selected by the author and twenty-four teachers from an analysis of eight textbooks; the list indicates the number of books containing each word. Barr and Gifford's "Vocabulary of American History" is based on the frequency of the technical words found in eight textbooks; the final list of 1,900 omits all words included in the first 3,000 in Thorndike's *The Teacher's Word Book*[4] and embraces only words found in six of the eight textbooks.

The present study makes use of all three lists in determining the

[1] Luella Cole Pressey, "The Technical Vocabularies of the Public School Subjects: Section 5, American History." Bloomington, Illinois: Public School Publishing Co. For explanation of method see *Educational Research Bulletin*, III (April 30, 1924), 182–85.

[2] H. T. Hatch, "A Study of Word Frequency in American History Textbooks." Unpublished Master's Thesis, Department of Education, University of California, 1930.

[3] A. S. Barr and C. W. Gifford, "The Vocabulary of American History," *Journal of Educational Research*, XX (September, 1929), 103–21.

[4] Edward L. Thorndike, *The Teacher's Word Book*. New York: Teachers College, Columbia University, 1921. Pp. vi+134.

extent of the technical vocabularies possessed by pupils in high-school courses in American history and the amount of growth resulting from the study of the subject. Words were selected from the lists and incorporated in a set of tests which were administered at the beginning and at the end of the first and the second semesters of the course in American history. The list included 160 of the most frequently used and the most difficult words. About 90 per cent of these words are found in all the textbooks analyzed by Hatch, and about 75 per cent of them are regarded as essential and 25 per cent as important by Pressey. The first fifty words on the list occur in all eight textbooks analyzed by Barr and Gifford.

One-fourth of the words were embedded in true-false, one-fourth in synonym choice, one-fourth in phrase choice, and one-fourth in matching questions. The questions were first submitted for criticism to the members of a graduate seminar in education and later to an instructor of American history and to several other adults. On the basis of their suggestions, the questions were revised. The completed list was divided into two forms, A and B, according to the word frequency indicated by Thorndike's *Teacher's Word Book* and Barr and Gifford's "Vocabulary of American History." Typical questions follow.

In the following sentences a word is underlined. If the sentence gives the word its proper meaning, put a (+) sign in the space provided. If it gives an incorrect meaning, place a (o) in the space provided. Do not guess. Omit those you do not know. [Example given.]

1. ..... The executive department of the government explains our laws.
2. ..... A manufacturing company exploits its workers if it requires long hours with small pay.

Underline the word or phrase which gives the *best* meaning to the word already underlined. Also place the number of the word at the beginning of the sentence. [Example given.]

1. ..... A levy was placed on the property. (1. loan; 2. rebate; 3. lease; 4. tax)
2. ..... The chairman was chosen by ballot. (1. oral vote; 2. nomination; 3. secret written vote; 4. appointment)

Place a cross in front of the phrase which best describes each of the following words in the space provided. Check one only. [Example given.]

Monopoly

..... Talking in an even tone
..... Sole right
..... Single marriage
..... Single money standard

Find the word on the right which fits the definition on the left. Place the number of that word in front of the definition in the space provided. [The matching question was composed of ten definitions and twelve words.]

..... A type of early American government with authority resting on one man	1. institution
..... Having a spirit of enmity or hate	2. nomination
..... A fixed or an established organization of society	3. appropriation
..... One having public civil authority	4. loyalist
..... The art of directing vessels at sea	5. proprietary
	6. fugitive

The reliability coefficient for Forms A and B was computed from test results from 144 pupils. Both forms were administered to twenty-three ninth-grade pupils in their second semester of American history, to sixty-four pupils finishing the first semester of American history in the senior high school, and to fifty-seven pupils finishing the second semester of American history in the senior high school. All three groups were in different school systems. The group of twenty-three ninth-grade pupils was tested on Form A followed by Form B on succeeding days. The group of fifty-seven pupils took the forms in reverse order, several days apart. The group of sixty-four pupils took both forms at once, some taking Form A first, some mixing the sheets. On the whole, the practice effect should have been equalized. Both forms were administered by the same experienced teacher. The mimeographed test sheets included uniform directions. The tests were completed by practically all the pupils within thirty minutes. The results for Forms A and B are given in Table I. Inspection of the mean scores indicates that Form A was 5.1 words more difficult than Form B. The correlation between the two forms is .836, with a probable error of .017.

All the pupils used in the growth study proper were enrolled in accredited high schools in three cities in the San Francisco Bay region. One of the cities was represented by several schools, the other two by one school each. Each school offered a two-semester course

in American history, History I and History II. The pupils in both History I and History II were tested at the beginning of the semester with Form A and at the end of the semester with Form B.

FINDINGS

The growth of the technical vocabularies of the pupils who completed both forms of the test is shown in Table II. The highest possible score for Form B was 80: owing to the difference in the difficulty of the two forms shown in Table I, the high score of 80 was corrected to 85.1. One of the outstanding disclosures of Table II is the wide range in the vocabularies possessed by the first-semester

TABLE I

RESULTS ON FORMS A AND B OF A TEST ON THE VOCABULARY OF AMERICAN HISTORY*

	Form A	Form B
Number of subjects	144	144
High score	77	76
Low score	16	12
Range	61	64
Mean score	53.56±.77	48.46±.78
Standard deviation	13.71	13.93

* The correlation between the two forms is .836±.017.

pupils. The better vocabularies were approximately twenty times as large as the poorer ones. For the first-semester pupils an average growth of 6.33 words is indicated for the semester. In view of the size of the probable error, the increment must be regarded as significant. The technical vocabularies of the 149 pupils in the second semester who completed both forms of the test again show a wide range in vocabulary information. After correction is made in the total possible score for Form B, the mean growth for the semester appears to be 5.05 words. Again, the inspection of the probable error indicates that the amount of growth is significant.

The differences between the scores of the first-semester and the second-semester pupils on the two forms of the test are shown in Table III. On Form A (given at the beginning of the semester) the difference was 5.53 words; on Form B (given at the end of the semester) the difference was 4.25 words. If it may be assumed that the

two groups were of equal ability and training, it may be said that this gain of five and a half words would represent the amount of growth in technical vocabulary during the first semester of American

TABLE II

RESULTS ON FORMS A AND B OF A TEST ON THE VOCABULARY OF AMERICAN HISTORY GIVEN TO 569 PUPILS IN THE FIRST SEMESTER AND 149 PUPILS IN THE SECOND SEMESTER OF THE COURSE

	First-Semester Pupils		Second-Semester Pupils	
	Form A (Given at Start of Semester)	Form B (Given at End of Semester)	Form A (Given at Start of Semester)	Form B (Given at End of Semester)
Highest possible score	80	85.1	80	85.1
Highest score	77	82	77	82
Lowest score	4	4	12	15
Range in scores	73	78	65	67
Mean score*	41.87	48.20	47.40	52.45
Standard deviation	15.21	16.05	13.85	15.17

* The difference between the mean scores for the first-semester pupils is $6.33 \pm .93$; for the second-semester pupils, 5.05 ± 1.13.

TABLE III

DIFFERENCES BETWEEN RECORDS OF FIRST-SEMESTER AND SECOND-SEMESTER PUPILS ON FORMS A AND B OF TEST ON THE VOCABULARY OF AMERICAN HISTORY

	First-Semester Pupils	Second-Semester Pupils	Difference
Mean score on Form A	41.87	47.40	5.53
Mean score on Form B	48.20	52.45	4.25
Standard deviation on Form A	15.21	13.85	−1.36
Standard deviation on Form B	16.05	15.17	−0.88

history. The actual gain, however, of the first-semester pupils was six and one-third words. According to Table III, the difference between the groups at the end of the semester on Form B was four and one-fourth words. Other factors being equal, this amount would represent the amount of growth in the second semester of American history, but Table II shows the actual gain of the second-semester pupils to have been five words.

DISCUSSION

The meanings of the 160 words in the test used in this study were regarded by two previous investigators as important or even essential for the proper understanding of American history. In fact, each of the earlier investigators identified approximately 1,050 words which should become familiar to American-history students. The estimate of the importance of the words was based on the judgment of many experienced teachers.

The present study shows that the gain of all the pupils from one semester's study of history averaged about five and a half words. The mean initial vocabulary of the first-semester pupils included 41.87 of the selected words and that of the second-semester pupils 47.40 words. The average for the two is approximately 45 words. Since the test limit was 85 words, the average gain of the two sections represents 14 per cent of the possible amount of gain.

It is probable that the proportion of the 1,050 words the meanings of which were unknown to the pupils was the same as the proportion of unknown words in the test, since the test words were among the most frequent in the lists. If a proportionate knowledge may be assumed, these pupils knew 556 important technical words at the start. An increase of 14 per cent signifies the acquisition of 69 new words a semester. At first glance an increment of 69 technical words appears to constitute a reasonable gain for one school subject, but at that rate it would require seven semesters' study of American history to equip pupils with the 1,050 words.

These vocabulary lists represent the careful judgment of experienced teachers and competent investigators and cover the textbooks most frequently used in the secondary schools. Furthermore, psychological analysis of the learning process points out the futility of attempting to teach material when the meanings of the key words are unfamiliar. It will be recalled that the pupils used in the study were enrolled in accredited cosmopolitan California high schools. If the desirability of the textbook material now used may be assumed, the data appear to justify the conclusion that, in so far as these pupils are representative of high-school pupils in general, there is a definite need of special instruction in the technical vocabulary of American history.

STATUS OF ALGEBRA AND GENERAL MATHEMATICS IN THE NINTH GRADE

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SCOPE OF THE STUDY

Heightened interest and disagreement mark the attitudes of educators toward the type of subject matter which should be included in a course in ninth-grade mathematics. The writers during the past two years have made a study of (1) the aims and the content of the textbooks in algebra and the textbooks in general mathematics most commonly used in the state of Wyoming and (2) the acceptance of the two types of courses by higher institutions of learning.

Questionnaires were sent to every high school in the state and to a sampling of twenty-three state universities throughout the United States. The aims of the six textbooks most frequently used in the state were compared with the recommendations of national committees and other authorities on mathematics.

THE TEXTBOOKS

Aims of the textbooks.—The three textbooks in algebra and the three in general mathematics most frequently mentioned in the answers to the questionnaires sent to the seventy-eight high schools in Wyoming were selected for study.

The objectives of the six textbooks were copied from the prefaces of the books and from advertising material sent out by the publishers. These aims were then tabulated under eighteen heads. The following five aims are the most important in a comparison of algebra and general mathematics: (1) to meet the recommendations of examining bodies and universities, (2) to correlate algebra with arithmetic and geometry, (3) to provide for individual differences, (4) to provide unit organization, and (5) to introduce the function concept.

Both types of textbooks uniformly state that one of their objectives is to satisfy the requirements of examining bodies and of universities. All the textbooks in algebra and all the textbooks in general mathematics list as an objective the correlating of algebra with geometry and arithmetic. Two of the textbooks in general mathematics and one in algebra mention the provision for individual differences. Unit organization is mentioned among the aims of two of the textbooks in general mathematics but in none of the textbooks in algebra, and the function concept is mentioned by one of the textbooks in general mathematics.

Although the mention of an aim in the preface of a book does not give any certainty that the achievement of the aim is provided for in the text, it does show that the author considers the aim of importance in the subject. Even though six books cannot be considered a sufficient number from which to draw final conclusions concerning the aims of textbooks in ninth-grade mathematics, this study of the two types of books tends to show that there are no significant differences between the aims of textbooks in general mathematics and those of textbooks in algebra.

Content of the textbooks.—The textbooks were analyzed by the use of the form advocated in the report of the National Committee on Mathematical Requirements,[1] in which are listed the four branches of mathematics which should be considered in algebra, namely, arithmetic, algebra, geometry, and numerical trigonometry. The treatment of algebra is considered under five headings: (1) the formula, (2) positive and negative numbers, (3) graphs, (4) the equation, and (5) algebraic techniques.

After the content of each of the three textbooks in algebra and of the three textbooks in general mathematics had been tabulated, Table I was constructed to show the percentages of problems of each type in the three textbooks in algebra and the three textbooks in general mathematics. This table shows that the percentages of problems devoted to the four branches are similar in the three textbooks in algebra. The textbooks in general mathematics do not agree so closely. The composite totals show that about 6 per cent of the con-

[1] *The Reorganization of Mathematics in Secondary Education.* United States Bureau of Education Bulletin No. 32, 1921.

tent of the three textbooks in algebra is devoted to the study of arithmetic, 3.5 per cent to geometry, almost 3 per cent to trigonometry, and 88 per cent to the various forms of algebra. Over 9 per cent of the content of the three textbooks in general mathematics deals with arithmetic, almost 11 per cent with geometry, 3 per cent with trigonometry, and approximately 77 per cent with algebra.

It is evident that the textbooks in "general mathematics" devote slightly more attention to arithmetic and geometry and somewhat

TABLE I

PERCENTAGES OF EXERCISES AND PROBLEMS CONCERNED WITH FOUR BRANCHES OF MATHEMATICS IN EACH OF THREE TEXTBOOKS IN ALGEBRA AND THREE TEXTBOOKS IN GENERAL MATHEMATICS

Branch of Mathematics	Percentage in Textbooks in Algebra				Percentage in Textbooks in General Mathematics			
	Book X	Book Y	Book Z	Average	Book A	Book B	Book C	Average
Number of problems	4,320	5,928	4,655	14,903	4,249	4,720	2,835	11,804
Algebra:								
Formulas	2.2	7.4	2.6	4.1	4.7	3.6	6.9	5.1
Positive and negative numbers	4.7	2.9	9.8	5.8	5.7	6.3	9.3	7.1
Graphs	1.6	2.6	2.8	2.3	3.2	4.9	5.8	4.6
Equations	27.2	26.9	26.0	26.7	30.3	28.4	18.4	25.7
Algebraic techniques	51.2	47.3	49.3	49.3	43.6	33.6	26.0	34.4
All algebra problems	86.9	87.1	90.5	88.2	87.5	76.8	66.4	76.9
Arithmetic	7.2	6.3	3.9	5.8	4.7	6.3	16.9	9.3
Geometry	3.6	3.7	3.1	3.5	5.8	13.9	12.7	10.8
Trigonometry	2.3	2.9	2.4	2.5	2.1	3.0	3.8	3.0

less attention to the study of algebra than do the textbooks in "algebra." Although the two types of books differ somewhat in the percentages devoted to the various branches of mathematics, both types definitely devote a large percentage of space to the study of algebra and both give definite attention to the assimilation of other knowledge than algebra.

Recent shift in type of textbook used.—The questionnaire sent to the high schools shows the percentages of schools which now use and which formerly used the two types of textbooks. The percentage of high schools in Wyoming using textbooks in general mathematics

has increased in recent years from 10 to 18.8, or nearly double. The results signify that some of the schools are changing from the study of algebra of the traditional type to the more generalized type of mathematics.

TABLE II

ANSWERS RECEIVED FROM TWENTY-THREE STATE UNIVERSITIES TO QUESTIONNAIRE ON ENTRANCE REQUIREMENTS IN MATHEMATICS

State University	Require Algebra	Will Accept General Mathematics	Answer Not Definite	No Requirement in Mathematics
Alabama			×	
Arizona		×		
Arkansas		×		
California	×			
Colorado			×	
Connecticut		×		
Delaware	×			
Florida	×			
Idaho		×		
Illinois		×		
Iowa		×		
Maine		×		
Minnesota	×			
Montana		×		
Nebraska		×		
Nevada	×			
New Mexico				×
New York			×	
South Dakota	×			
Utah	×			
Washington		×		
Wisconsin			×	
Wyoming		×		
Total	7	11	4	1
Percentage	30.4	47.8	17.4	4.4

ATTITUDE OF UNIVERSITIES

Questionnaires were sent to twenty-three universities, asking their policies with regard to the admittance of students having credit in general mathematics in lieu of algebra. The results, given in Table II, show that only 30.4 per cent of the respondents definitely require algebra, while almost half will accept general mathematics. Approximately 17 per cent were not definite in their answers or

evaded the question. Only one of these state universities, New Mexico, requires no mathematics for entrance. Credit for courses in general mathematics, if the courses cover the essential material of algebra, is accepted by about half the universities studied.

SUMMARY AND CONCLUSIONS

Tabulations of the stated aims of three textbooks in algebra and three textbooks in general mathematics indicate that the authors of these textbooks have similar aims. Both types of textbooks stress the correlation of algebra with arithmetic, geometry, and trigonometry. An analysis of the content of the six textbooks shows that the textbooks in algebra give less attention to arithmetic and geometry and more attention to algebra than do the textbooks in general mathematics. Both types of books devote a large percentage of space to algebra.

Questionnaires sent to all the high schools in Wyoming show that in recent years the number of schools using general mathematics has nearly doubled.

Approximately half the twenty-three universities questioned will accept credit in general mathematics in lieu of algebra.

SHOULD PUPILS TAKE PART IN MAINTAINING GOOD DISCIPLINE?

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THE QUESTION AT ISSUE

Certain periods and situations in most schools call attention to the problem of discipline more definitely than do others. For example, many large high schools are presented with a real problem when some teachers and their pupils on all floors are having lunch while the others on all floors continue with regular classroom work. This situation calls for quietness in the halls, for the protection of the books and other materials left on the desks of open rooms by teachers and pupils who are out to lunch, and for some supervision in a crowded lunchroom. The problem is further accentuated in schools in which not more than a half or a third of the hall area of one floor can be viewed from any given point.

When consideration is given the problem of discipline in a setting such as that described, the following questions present themselves: Why not use some plan which gives to the pupils a direct part in maintaining desirable standards? Why not adopt a plan which will maintain the very necessary state of good discipline while permitting pupils to perform duties that will give opportunity for constructive self-expression, supply training in leadership, give satisfaction, and present added incentives to uphold certain desirable standards of discipline primarily because of devotion to the standards rather than because of fear of authority?

THE PLAN IN ONE SCHOOL

The plan now in its fourth semester of successful operation in the junior department at Holmes High School is an outgrowth of a "better-school campaign" sponsored by the student council. The fact that the plan has materially improved the discipline of the school has been obvious to all observers. The junior department,

which has an enrolment of 1,180, consists of Grades VII–IX, inclusive. The student council approved the plan of placing "pupil aids" on duty in the halls and in the lunchroom to "remind" pupils who are seen breaking into the lunch line out of turn, slamming locker doors, talking boisterously in the halls, running on the stairs or in the halls, or violating any other school standard.

The aids are selected and supervised by a member of the teaching staff in co-operation with the vice-president of the student council. Any ninth-grade boy or girl who has a scholastic record above the average and whose past conduct has not been open to criticism is eligible for aid duty. It was decided that a pupil with a scholastic record below the average could not afford to sacrifice daily the larger part of one of his three study-hall periods. Each aid is appointed for a term of one semester on the condition that he remain eligible. He is given a badge to wear while on duty, is assigned definite periods and places for duty, and is assigned to one of two home rooms made up entirely of aids. Two or three of these pupil officers are stationed on each floor during the passing of classes between all periods, before and after school, and during the lunch period. During the lunch period several aids are on duty in the lunchroom. Each aid has one major assignment (a half-hour during the lunch period) and two or three minor assignments (the few minutes while classes are passing between periods or a brief period before or after school). Approximately fifty-five aids are on duty daily.

When a pupil is seen violating a school rule or standard, an aid calls this fact to the attention of the offender. If the offender demonstrates by repeated offenses that he will not co-operate with the aid nor pay any attention to him, a blank especially prepared for the purpose is filled out by the aid and turned over to the office. This report gives the date, the name of the offender, a statement of the offense, and the name of the aid. The offender is then asked to appear at the office after school, and he is urged to give better co-operation in the future. No penalty is attached by the office except in unusual cases. A written record is kept of all offenses, and the office discipline records show that the pupils who do not co-operate with the aids are almost invariably the same pupils who are sent to the office by teachers for lack of co-operation in the classrooms. The aid reports average less than two a day.

Pringle[1] criticizes plans in which one pupil reports another on the ground that such reporting violates the adolescent honor code. The writer believes that the pupil-aid plan described is not open to this criticism. The plan is analogous to a game in which all pupils participate. All pupils know the rules of the game and are supposed to play according to those rules. Initial infractions are called to the attention of the erring players, and no penalty is attached. Only when it becomes obvious to a referee (a pupil officer) that a player is consciously and wilfully breaking the rules is a penalty (report of offense to the office) announced by the referee in accord with the well-understood rules. The offender knows in advance that his actions demand either the penalty or disregard of the rules by the referee who is supposed to enforce them. No confidences are violated; no secret, unexpected talebearing takes place; no adolescent code of loyalty is broken, unless it be on the part of the offender, who refuses to play fair and makes the invoking of the penalty against him mandatory according to the rules accepted by the group.

THE PRACTICES IN MANY SCHOOLS

Wishing to secure some indication of the extent to which other large schools in this country use a plan similar to the procedure described, the writer in October, 1934, mailed a questionnaire to two-hundred senior and junior high schools. Only these two questions were asked.

1. In your school do the pupils have any direct part (through specially designated pupil officers or monitors) in keeping order in the halls, corridors, and on stairs; lunchroom; classrooms; study halls; or lavatories? If so, in which of the named places?

2. If so, when disorder or violation of standards occurs and an offender repeatedly refuses to pay any attention to, or co-operate with, a pupil officer, is the pupil officer supposed to report the offender by name to an adult school authority, a committee composed of teachers and pupils, a committee of pupils, or to no person or committee?

Replies were received from 159 of the 200 schools. The names of the schools indicate that 36 are junior high schools, several are junior-senior high schools, and the remaining schools are "high schools." The schools that answered the questionnaire are dis-

[1] Ralph W. Pringle, *The Psychology of High-School Discipline*, p. 337. Boston: D. C. Heath & Co., 1931.

tributed to the following states: New York, 29; Massachusetts, 21; Pennsylvania, 14; New Jersey, 13; Michigan, 13; Ohio, 11; California, 11; Indiana, 9; and a smaller number in twelve other states. Virtually all these schools are located in the largest cities of each state.

Of the 159 schools that replied, 127, or 80 per cent, stated that pupil officers are used in one or more of the places named in the first question. The remaining 32 schools, or 20 per cent, answered "No."

A summary of the answers from the 127 schools that use pupil officers is presented in Table I.

TABLE I

PLACES TO WHICH PUPIL OFFICERS ARE ASSIGNED TO KEEP ORDER AND PERSONS TO WHOM PUPIL OFFICERS REPORT OFFENDERS IN 127 SCHOOLS

	Number of Schools	Percentage of Schools
1. Places to which pupil officers are assigned:		
Halls, corridors, and stairs	124	97.6
Lunchroom	92	72.4
Lavatories	52	40.9
Study halls	24	18.9
Classrooms	19	15.0
2. Persons to whom offenders are reported:		
Adult school authority	96	75.6
Committee of pupils and teachers	23	18.1
Committee of pupils	5	3.9
No person or committee	3	2.4

Among the comments that relate to study halls were the following: (1) "A few study halls." (2) "In a few periods, we have been trying it out with study halls." (3) "Pupils are in charge of overflow study halls."

A recent writer in the *School Review*, E. E. Butterfield, principal of the John Adams High School, Cleveland, Ohio, in discussing the problem in his school, states: "From 80 to 90 per cent of all the boys are in honor (pupil-managed) study halls. Less than 1 per cent of the girls have failed to qualify for honor study halls."[1]

[1] E. E. Butterfield, "A Procedure for Assigning High-School Pupils to Classes," *School Review*, XLII (September, 1934), 534.

No comments were made which indicate the specific duties of the pupil officers who are used in the classrooms of nineteen schools. Perhaps the duties of these officers are limited to checking the roll or taking charge when the teacher is out of the room. It is difficult to imagine what other duties could properly be turned over to pupils in the typical classroom.

The writer arbitrarily classified the answers to the second question of the questionnaire into the divisions of the second part of Table I. Many of the answers did not fit well into any of the divisions. A student court operating under the guidance of a teacher was classified as a "committee of pupils and teachers." "Adult school authority" was interpreted to include teachers, deans, principals, assistant principals, etc.

Several of the answers included comments on the number of pupil officers used in the schools reporting, of which the following are examples:

1. We have 101 students on duty daily [in corridors, stairs, and lunchroom].
2. We use thirty-six pupils per period in ten-period day for this service [in corridors, stairs, and lunchroom].
3. We have forty boys and girls in uniform—"The Terrace Guards." They keep order in all places, including games and dances [the school enrolment is 2,000].
4. Twelve hundred officers a term. Register, 6,300.

A great variety of names is applied to the pupil officers, among which are the following: members of the guard club, members of the safety patrol, members of the service club, junior police, marshals, pupil aids, student advisers, proctors, hall monitors, traffic patrolmen, and counselors.

HIGH-SCHOOL ATHLETICS AND SCHOLARSHIP MEASURED BY ACHIEVEMENT TESTS

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EARLIER STUDIES

Organized interscholastic athletics are no doubt the most highly advertised of all extra-curriculum activities in either high school or college. Considerable time and energy are expended by the pupils who engage in the major interschool athletic contests. There are persons who will contend that pupils who devote the hours, the strength, and the attention required to participate in these contests do so at the expense of their scholarship in school. Others will stoutly defend the thesis that what is lost in scholarship by the participant is more than compensated for by the rich experiences gained. The question which naturally arises is: Who has lost, the athlete or the non-athlete?

The studies made in this field at the high-school level have been open to criticism because teachers' marks were invariably used as the measure of achievement. The studies of Cook and Thompson published in 1928,[1] Finch in 1932,[2] and Eaton and Shannon in 1934[3] are undoubtedly the best. Cook and Thompson compared 91 letter boys with 100 non-letter boys in the Hughes High School in Cincinnati. These investigators found that the athletes were slightly lower in scholarship, made poorer records during participation, were more likely to graduate, remained longer in school, and were more likely to enter college than non-athletes. Finch collected data from the scholarship records of 174 boys who were graduated from the

[1] William A. Cook and Mabel Thompson, "A Comparison of Letter Boys and Non-Letter Boys in a City High School," *School Review*, XXXVI (May, 1928), 350–58.

[2] F. H. Finch, "Athletics and Achievement in High School," *School and Society*, XXXV (February 27, 1932), 299–300.

[3] Dorothy Eaton and J. R. Shannon, "College Careers of High-School Athletes and Non-Athletes," *School Review*, XLII (May, 1934), 356–61.

University High School, University of Minnesota, over a seven-year period ending June, 1931. Athletes were paired with non-athletes according to intelligence quotients. Achievement was measured in terms of honor points derived from teachers' marks. A thorough statistical treatment of the data indicated no significant difference between the two groups in academic achievement. Eaton and Shannon made a study of the subsequent college careers of high-school athletes in Indiana State Teachers College, Terre Haute, Indiana. High-school athletes as a group were compared with high-school non-athletes according to marks received in college. These writers found a significant difference in achievement in favor of the non-athletes. It is well to remember that in this study athletes and non-athletes were not paired with respect to mental ability.

At the college level the comprehensive work done by Savage[1] under the auspices of the Carnegie Foundation for the Advancement of Teaching is convincing. Briefly, the work leads to the conclusion that the notion that athletes are, in general, less capable students than non-athletes is erroneous. The subjectivity of this work resulting from the use of teachers' marks as a measure of achievement has rendered this study vulnerable. However, Cooper[2] substantiated the work of Savage by evidence offered in his investigation of seven Pennsylvania colleges. Cooper was the first to use objective tests as a measure of achievement.

It is apparent from the foregoing studies that more objective evidence is needed at the high-school level. The writer therefore offers the following study made during the school year 1933–34.

THE PRESENT STUDY

The problem.—Specifically, the purpose of this study was to determine whether participation in organized interscholastic athletics had any effect on academic achievement as measured by objective tests in five high schools in Raleigh County, West Virginia.

[1] Howard J. Savage, "College Athletics and Scholarship," *Twenty-second Annual Report of the President and the Treasurer of the Carnegie Foundation for the Advancement of Teaching*, pp. 49–52. New York: Carnegie Foundation for the Advancement of Teaching, 1927.

[2] John Andrew Cooper, *The Effect of Participation in Athletics upon Scholarship Measured by Achievement Tests.* Penn State Studies in Education, No. 7. State College, Pennsylvania: School of Education, Pennsylvania State College, 1933.

Definition of terms.—An "athlete" was defined as any male pupil in Grades X, XI, or XII who was a regular participant in practice with the regular football or basketball squads, or both, throughout the season of 1933–34. A "border-line case" was defined as any male pupil who might be considered an athlete but who did not meet the full limitations of the definition. A "core subject" is a subject required of all high-school pupils for graduation in the state of West Virginia.

Procedure.—The Otis Self-administering Tests of Mental Ability were given to all male pupils in Grades X–XII, inclusive, in the five high schools. Athletes were paired with non-athletes according to school, grade, age, and intelligence quotient. Achievement was measured in three core subjects, namely, English, biology, and American history. The Columbia Research Bureau English Test and the Ruch-Cossmann Biology Test were given to all tenth-, eleventh-, and twelfth-grade pairs. The Columbia Research Bureau American History Test was given to all eleventh- and twelfth-grade pairs. American history is not regularly offered in these schools before Grade XI. Care was taken not to include a pair which contained a border-line case or a pair which contained a pupil taking one of the measured subjects in a grade in which it was not regularly offered.

Results.—Eight combinations of data and the results of the statistical treatment of each are presented in Table I.

In all previous studies of the effect of participation in interscholastic athletics on scholarship at the high-school level, teachers' marks have been used as the basis of comparison. In this study standardized achievement tests were used. However, the limitations of this study render definite conclusions hazardous. A few remarks concerning the general trend of the results will, perhaps, be of some aid in the interpretation of the results.

In three phases of this investigation, namely, the larger high school taken as a unit, the four small high schools taken as a group, and the five high schools considered as a unit, it is striking, if not significant, to find in each case that the trend is in favor of the athlete.

TABLE I

COMPARISON OF INTELLIGENCE, CHRONOLOGICAL AGE, AND ACHIEVEMENT ON STANDARDIZED TESTS OF PAIRS OF ATHLETES AND NON-ATHLETES IN RALEIGH COUNTY (WEST VIRGINIA) HIGH SCHOOLS

MEASURE COMPARED	MEAN		STANDARD DEVIATION		DIFFERENCE OF MEANS	STANDARD ERROR OF DIFFERENCE	CRITICAL RATIO	CHANCES IN 100 THAT DIFFERENCE IS GREATER THAN 0
	Athletes	Non-Athletes	Athletes	Non-Athletes				
41 Pairs in Grades X–XII in One Large School Paired by Grade, Age, and Intelligence Quotient								
Intelligence quotient	96.77±1.63	96.65±1.66	10.45±1.15	10.60±1.17	0.12	2.32	0.05	52
Age (in months)	214.82±2.48	212.15±2.22	15.85±1.76	14.20±1.57	2.67	3.33	.80	79
Score on English test	92.32±3.40	88.91±3.51	21.80±2.40	22.50±2.49	3.41	4.89	.70	76
Score on biology test	26.04±1.91	23.72±1.37	12.25±1.35	8.80±0.98	2.32	2.35	.99	84
32 Pairs in Grades XI and XII in One Large School Paired by Grade, Age, and Intelligence Quotient								
Intelligence quotient	98.59±1.79	98.59±1.87	10.10±1.26	10.60±1.32	0.00	.....	.....	50
Age (in months)	220.00±2.23	218.43±2.34	12.60±1.57	13.25±1.66	1.57	3.23	.49	69
Score on American history test	52.20±2.55	50.94±2.81	14.40±1.80	15.90±1.98	1.26	3.79	.34	63
47 Pairs in Grades X–XII in Four Small Schools Paired by School, Grade, Age, and Intelligence Quotient								
Intelligence quotient	96.12±1.51	96.54±1.49	10.35±1.07	10.20±1.05	−.42	2.12	.20	57
Age (in months)	211.54±2.43	210.78±2.50	16.63±1.72	17.15±1.77	.76	3.49	.22	59
Score on English test	90.55±4.05	90.75±3.53	27.80±2.88	24.20±2.51	−.20	5.37	.04	51
Score on biology test	23.45±1.71	22.60±1.44	11.70±1.21	9.85±1.03	.85	2.23	.38	64
30 Pairs in Grades XI and XII in Four Small Schools Paired by School, Grade, Age, and Intelligence Quotient								
Intelligence quotient	96.67±1.84	97.17±1.78	10.09±1.40	9.75±1.25	−.50	2.56	.19	57
Age (in months)	222.03±2.72	222.03±3.05	14.90±1.92	16.70±2.16	.00	.....	.....	50
Score on American history test	56.00±3.85	51.70±3.27	21.10±2.72	17.90±2.31	4.30	5.05	.85	80
88 Pairs in Grades X–XII in All Five Schools Paired by School, Grade, Age, and Intelligence Quotient								
Intelligence quotient	96.42±1.11	96.58±1.11	10.40±0.78	10.37±0.78	−.16	1.57	.10	53
Age (in months)	213.10±1.76	211.60±1.79	16.55±1.25	16.80±1.27	1.50	2.51	.60	73
Score on English test	91.80±2.61	90.00±2.52	24.50±1.84	23.60±1.78	1.80	3.63	.50	69
Score on biology test	24.88±1.21	23.63±0.95	11.35±0.88	8.95±0.68	1.25	1.54	0.81	70

TABLE I—*Continued*

Measure Compared	Mean		Standard Deviation		Difference of Means	Standard Error of Difference	Critical Ratio	Chances in 100 that Difference Is Greater than 0
	Athletes	Non-Athletes	Athletes	Non-Athletes				
	62 Pairs in Grades XI and XII in All Five Schools Paired by School, Grade, Age, and Intelligence Quotient							
Intelligence quotient	97.67±1.30	97.91±1.29	10.25±0.92	10.15±0.91	− .24	1.83	0.13	55
Age (in months)	219.08±1.75	217.65±1.90	13.80±1.24	14.95±1.34	1.43	2.58	.55	71
Score on American-history test	53.71±2.15	51.14±2.13	16.90±1.32	16.80±1.51	2.57	3.03	.85	80
	44 Pairs above Median in Intelligence of 88 Pairs in Grades X–XII in All Five Schools							
Intelligence quotient	105.00±0.88	104.77±1.01	5.85±0.62	6.72±0.72	.23	1.34	.17	57
Age (in months)	210.45±2.68	209.00±2.62	17.75±1.90	17.35±1.87	1.45	3.75	.39	64
Score on English test	98.86±3.76	104.33±2.73	24.96±2.66	18.08±1.93	−5.47	4.65	1.18	88
Score on biology test	28.29±1.99	28.06±1.18	13.20±1.41	7.85±0.84	.23	2.31	.10	54
	31 Pairs above Median in Intelligence of 62 Pairs in Grades XI and XII in All Five Schools							
Intelligence quotient	105.23±1.19	105.72±1.17	6.60±0.84	6.54±0.83	− .49	1.67	.29	60
Age (in months)	215.72±2.37	215.40±2.67	13.17±1.67	14.88±1.88	.32	3.57	.09	54
Score on American-history test	56.93±3.36	58.54±2.86	18.73±2.38	15.91±2.02	−1.61	4.41	0.37	64

In a fourth phase, the comparison of the more mentally capable athletes with non-athletes of the same mental level, the trend in the achievement in two out of the three measured subjects is slightly in favor of the non-athlete.

Finally, it is a fact that the difference in each case, statistically tested, is not reliable. In so far, therefore, as this investigation is concerned, the difference in achievement between the two groups is apparently negligible.

Implications.—In making this investigation, the writer had this question constantly in mind: Who, after all, is a participant in athletic contests? A member of the football team is obviously a participant. A regular member of the squad is certainly a participant, although he may not enter a single contest. Is the "fan," who never "went out for" football or basketball, a participant? If time is an

element, perhaps the pupil who watches practice every day, is a spectator at all games, and devotes a great deal of time to reading the sport news and "playing the game over" is also a participant.

Furthermore, suppose it could be shown that participation in interscholastic athletics has a definite detrimental effect on scholarship; the question then arises: Who has lost—the player or the non-participant? One has lost in scholarship but has had the experience of participation in athletic contests. The other has gained in scholarship but has lost in experience of participation. Since practically all investigations of the effect of interscholastic athletics on scholarship have shown negligible results, it would seem to follow that the non-participant is the loser.

SELECTED REFERENCES ON STATISTICS AND THE THEORY OF TEST CONSTRUCTION

FRANCES SWINEFORD AND KARL J. HOLZINGER
University of Chicago

The following bibliography has been selected from issues of educational and psychological journals for March, 1934, to February, 1935, inclusive. The first part contains items dealing with the theory and use of statistical methods, while the second part includes studies and discussions of problems of test construction. No articles on the use of tests have been included in the present list, since these items are distributed functionally to other lists in the cycle, for example, the lists concerned with secondary-school instruction, educational psychology, and guidance published in other issues of the *School Review* and the lists concerned with elementary-school instruction and exceptional children published in the *Elementary School Journal*.

THEORY AND USE OF STATISTICAL METHODS[1]

389. BRONFIN, H., and NEWHALL, S. M. "Regression and Standard Error Calculations without the Correlation Coefficient," *Journal of Educational Psychology*, XXV (November, 1934), 634–36.

Formulas are presented for the regression coefficient, its standard error, the regression equation, and the standard error of estimate, from which the correlation coefficient has been eliminated.

390. DICKEY, JOHN W. "Normalcy as a Statistic," *Journal of Educational Psychology*, XXV (September, 1934), 437–46.

Defines "a single quantitative measure of the observed frequency distribution when it is thought of as a whole and in relation to the normal curve." The author also presents an easy method of computation which yields a close approximation to the more exact value.

391. DOUGLASS, HARL R. "Some Observations and Data on Certain Methods of Measuring the Predictive Significance of the Pearson Product-Moment Coefficient of Correlation," *Journal of Educational Psychology*, XXV (March, 1934), 225–31.

[1] See also Items 377 and 381 in the list of selected references appearing in the May, 1935, number of the *School Review*.

Attention is called to types of situations in which investigators who base their conclusions on statistical relations fail to realize the possibilities and the limitations of the technique that they are employing.

392. EDWARDS, K. H. R. "Note on the Significance of Correlation Coefficients from Different Samples," *Journal of Applied Psychology*, XVIII (August, 1934), 528–35.

Describes a method of determining the significance of correlation coefficients when dealing with small samples. An illustration using three different samples has been included.

393. GARNETT, MAXWELL. "The Single General Factor: A Note on Linear Transformations of Hierarchical Systems," *British Journal of Psychology*, XXV (July, 1934), 100–105.

A theoretical demonstration that "instead of finding a different general factor whenever weighted averages of scores obtained in several mental tests are used in place of the direct scores, the chance of doing so is infinitesimal."

394. HOTELLING, HAROLD. "The Most Predictable Criterion," *Journal of Educational Psychology*, XXVI (February, 1935), 139–42.

Describes a method of finding a linear function of the criterion variates which can most accurately be predicted from given observations, in the sense of least squares.

395. MONROE, WALTER S. "A Note on Efficiency of Prediction," *Journal of Educational Psychology*, XXV (October, 1934), 547–48.

Discusses the formulas for the efficiency of predictions from the regression equation and for the observed efficiency when the predictions are compared with "random guesses."

396. MOORE, THOMAS VERNER. "Formal Causality and the Analysis of Mental Life," *Journal of Educational Psychology*, XXV (September, 1934), 401–21.

The author conceives of mental traits as deriving from a vast number of uncorrelated causes. On this hypothesis he shows that intercorrelations among traits may be explained by the percentage of overlap in the causes involved.

397. PIAGGIO, H. T. H., and DALLAS, A. E. M. M. "An Analysis of Recent Tests of the Two-Factor Theory," *British Journal of Psychology*, XXV (October, 1934), 217–20.

A new method of estimating the magnitude of the indeterminate part of Spearman's *g* is described and compared with results of other investigators.

398. SHEN, EUGENE. "Note on the Sampling Error of the Median," *Journal of Educational Psychology*, XXVI (February, 1935), 154–56.

Points out the extent of error resulting from the use of the standard error of the median, which assumes normality in the distribution, in case the distribution is distinctly platykurtic or leptokurtic.

399. STEPHENSON, W. "Factorizing the Reliability Coefficient," *British Journal of Psychology*, XXV (October, 1934), 211–16.

The author shows that reliability may or may not be a desirable feature of a test and that a measure of the factor saturation is more important than reliability.

400. STEPHENSON, W. "A Note on Factors and the Partial Correlation Procedure," *British Journal of Psychology*, XXV (January, 1935), 399–401.

Points out the dangers of applying the partial-correlation technique when the variables to be partialled out are not unitary in character.

401. SUTHERLAND, J. D. "A Reply to Dr. Stephenson's Note on Factors and the Partial Correlation Procedure," *British Journal of Psychology*, XXV (January, 1935), 402–3.

The author defends his use of partial correlation, which was criticized in a paper by Stephenson (Item 400 in this list).

402. THOMSON, GODFREY H. "Hotelling's Method Modified To Give Spearman's *g*," *Journal of Educational Psychology*, XXV (May, 1934), 366–74.

"A modification of Hotelling's process is described which, when applied to a hierarchical matrix of correlations gives Spearman's *g*, after which the unmodified process gives the specifics." The interpretation of the two processes is discussed.

403. THOMSON, GODFREY H. "The Meaning of *i* in the Estimate of *g*," *British Journal of Psychology*, XXV (July, 1934), 92–99.

A comparison between Spearman's *g* technique and the ordinary method of the regression equation.

404. THOMSON, GODFREY H. "On Measuring *g* and *s* by Tests Which Break the *g*-Hierarchy," *British Journal of Psychology*, XXV (October, 1934), 204–10.

The author points out a "theoretically possible method of obtaining perfect correlation with *g* (and with *s*) by using tests which are usually discarded from the Spearman battery in the process of weeding out correlations which break the hierarchy."

405. ZUBIN, JOSEPH. "Note on the Standard Error of the Difference between Coefficients of Variation of Correlated Variables," *Journal of Applied Psychology*, XVIII (June, 1934), 491–92.

Derives the equation for the standard error of the difference between the coefficients of variation of two correlated variables.

PROBLEMS OF TEST CONSTRUCTION[1]

406. ARNOLD, J. N. "Nomogram for Determining Validity of Test Items," *Journal of Educational Psychology*, XXVI (February, 1935), 151–53.

[1] See also Item 67 in the list of selected references appearing in the February, 1935, number of the *School Review* and Items 365, 382, and 384 in the May, 1935, number.

Presents a chart to be used for determining the validity of test items by the method of David F. Votaw ("Graphical Determination of Probable Error in Validation of Test Items," *Journal of Educational Psychology*, XXIV [December, 1933], 681–85).

407. BROTEMARKLE, R. A., and FERNBERGER, S. W. "A Method for Investigating the Validity of the Categories of a Judgment Test," *Journal of Educational Psychology*, XXV (November, 1934), 579–84.

A method is presented for validating the categories of a judgment test, with special application to the Roback Judgment Test.

408. CLASS, E. C. "The Effect of the Kind of Test Announcement on Students' Preparation," *Journal of Educational Research*, XXVIII (January, 1935), 358–61.

The relative values of new-type and essay tests are studied in the light of the results of objective tests and of the manner of preparation reported by students.

409. CUFF, NOEL B. "A New Device That Scores Tests," *Journal of Educational Psychology*, XXVI (January, 1935), 73–77.

An apparatus for weighing test answers (testometer) is compared with ordinary methods of scoring on the basis of rate and accuracy.

410. HANDY, UVAN, and LENTZ, THEODORE F. "Item Value and Test Reliability," *Journal of Educational Psychology*, XXV (December, 1934), 703–8.

Presents and illustrates a method for estimating test reliability when the item values are known.

411. HENRY, LORNE J. "A Comparison of the Difficulty and Validity of Achievement Test Items," *Journal of Educational Psychology*, XXV (October, 1934), 537–41.

The relation between the difficulty of a test item and its validity has been investigated for a multiple-choice test in physiography.

412. KELLEY, TRUMAN L. "The Scoring of Alternative Responses with Reference to Some Criterion," *Journal of Educational Psychology*, XXV (October, 1934), 504–10.

A formula is presented to determine the specific numerical credit that should be attached to a given response in an alternative-response test designed to differentiate between some special group (for example, successful engineers) and all other groups (non-engineers).

413. LEE, J. MURRAY, and SYMONDS, PERCIVAL M. "New Type or Objective Tests: A Summary of Recent Investigations (October, 1931–October, 1933)," *Journal of Educational Psychology*, XXV (March, 1934), 161–84.

The second summary and bibliography of the important investigations dealing with the new-type test.

414. MEYER, GEORGE. "An Experimental Study of the Old and New Types of Examination," *Journal of Educational Psychology*, XXV (December, 1934), 641–61; XXVI (January, 1935), 30–40.

In the first article the author reports the results of an experiment to determine the effect of the students' knowledge of the way in which they are to be examined on immediate and delayed memory of the material studied. In the second article an analysis is made of the students' methods of study for different types of examinations.

415. PINTNER, RUDOLF; MALLER, J. B.; FORLANO, G.; and AXELROD, H. "The Measurement of Pupil Adjustment," *Journal of Educational Research*, XXVIII (January, 1935), 334–46.

Describes the construction of a social-adjustment test for elementary-school pupils in Grades IV–VIII.

416. RICHARDSON, M. W., and STALNAKER, JOHN M. "Comments on Achievement Examinations," *Journal of Educational Research*, XXVIII (February, 1935), 425–32.

Gives some propositions for the purpose of establishing a tentative logical basis for test construction. The article contains a detailed criticism of a publication of August C. Krey and Palmer O. Johnson (*Differential Functions of Examinations*. Bulletin of the University of Minnesota, Vol. XXXVI, No. 4. Minneapolis, Minnesota: University of Minnesota, 1933).

417. ROSS, ROBERT T., and PIRIE, MARJORIE. "The Persistence of Errors in Successive True-false Tests," *Journal of Educational Psychology*, XXV (September, 1934), 422–26.

The retention of erroneous ideas arising from the true-false test itself has been measured under various conditions of administration.

418. SIMS, VERNER MARTIN. "An Evaluation of Five-, Ten-, and Fifteen-Item Rearrangement Tests," *Journal of Educational Psychology*, XXV (April, 1934), 251–57.

Rearrangement tests of five, ten, and fifteen items administered to a group of college students are compared on the basis of reliability, difficulty, time for taking, and time for scoring.

419. SPROULE, CHESTER E. "Suggestion Effects of the True-false Test," *Journal of Educational Psychology*, XXV (April, 1934), 281–85.

Negative suggestion effects, positive suggestion effects, permanency of these effects, and means of nullifying them were studied in two experiments with children in Grades V, VII, and IX.

420. STUTSMAN, RACHEL. "Factors To Be Considered in Measuring the Reliability of a Mental Test, with Special Reference to the Merrill-Palmer Scale," *Journal of Educational Psychology*, XXV (November, 1934), 630–33.

A discussion of the factors to be considered in the measurement and the interpretation of the reliability of a test.

421. TUCKMAN, JACOB. "A Picture Performance Scale," *Journal of Educational Psychology*, XXVI (January, 1935), 17–29.

Describes a performance test which has certain advantages over existing performance tests because the latter are expensive and difficult to administer and score. Norms on the new test have not yet been secured.

422. WATSON, GOODWIN, and FORLANO, GEORGE. "Prima Facie Validity in Character Tests," *Journal of Educational Psychology*, XXVI (January, 1935), 1–16.

The ratings of 150 judges are made the basis for recommendations concerning the type of material best suited for character tests.

Educational Writings

REVIEWS AND BOOK NOTES

Differentiation in education.—Differentiation is a theme that runs through Dean Johnston's collection of lectures, which he has entitled *Education for Democracy.*[1] The individual in relation to society must be made the focus of consideration whether the question at issue be determining the place of the college, the professional school, or the graduate school in a system of education adapted to social needs; or determining the content and the organization of the curriculum of each respective college or school; or defining the educational and the vocational ends to which persons of varying abilities may be encouraged to aspire.

This point of view is not new for the author, as anyone will realize who has followed his ardent advocacy of differentiation in education over a period of years. It is a point of view which still needs emphasis because of the tardiness of its acceptance.

The lectures composing the volume, which have been presented to learned societies or professional groups, deal with various phases of education. The reader, however, has no feeling that this volume presents merely a collection of papers, for running through all the discussions is the central theme which has already been stated. Inevitably, there is some variation in style and some repetition of content, as might well be expected in a group of lectures given on different occasions and to different audiences. Such repetition and variations as exist are not sufficient to detract from the interest of the volume as a whole; instead, they give emphasis to certain focal points.

Among the major points stressed by the author, although not presented in the order in which they are discussed here, may be mentioned several that have impressed the writer of this review as particularly important.

First is the consideration that is given to the necessity of educating every person in terms of his capacity. It follows that every reliable means must be employed in making an individual diagnosis to estimate the capacity to learn. To this end use must be made of intelligence tests, of tests for identifying special aptitudes and interests, and of instruments for analyzing personality traits.

[1] John B. Johnston, *Education for Democracy:* Essays and Addresses. Minneapolis, Minnesota: University of Minnesota Press, 1934. Pp. vi+280. $2.50.

Counseling the individual in the light of his abilities, aptitudes, and interests becomes basic to the achievement of appropriate educational ends.

Second is the necessity of so organizing the curriculum as to provide an education adapted to the needs of differentiated groups. For all groups there should be provided certain foundation elements which are considered essential in general education. These may be offered by the junior college or in the first years of a liberal-arts college. In addition curriculums should be organized for more restricted groups who, by native endowment and because of impelling interests, may be considered qualified to progress beyond the level of general education. For some, the more advanced curriculums will be primarily cultural in nature; for others, the curriculums will turn progressively in the direction of research; for still others, they will lead into various types of professional or creative work.

Third, with the reorganization of the curriculum must come a reorganization of the administrative units of education. This reorganization involves not only a new relation between secondary and higher education but also the relation of professional schools to one another and to the liberal-arts college. The author points the way for liberalizing the program of teacher training and for the allocation of educational responsibility to various colleges and professional schools along functional lines. In providing education for research, for creative work, or for culture, the lines between the senior college and the graduate school must disappear.

The total series of lectures throws many side lights on the major issues that have been sketched in the preceding statements. In fact, it is impossible within the scope of a brief review to give due emphasis to the thoroughness with which the author has treated these issues.

The volume is neither a textbook nor a novel. It is the type of book that the intelligent layman as well as the professional educator may read with keen interest and profit. The point of view is exceedingly challenging even though exception may be taken to some of the proposed plans for carrying out the theories advocated. The author's previous lectures and writings have pointed the way for changes in education that are slowly being effected, and it is safe to predict that this further expression of his philosophy will undoubtedly influence educational thought and trends.

A. J. BRUMBAUGH

Co-operation between the schools and the Boy Scouts.—The Boy Scouts of America is recognized by laymen and educators alike as one of the most significant educational developments of the twentieth century. Its councils are found in all the states, and the scouts and their adult leaders are numbered by hundreds of thousands. Being concerned with boys of school age and principally with out-of-school hours, and being devoted to objectives which are wholly educational and strikingly similar to those of the school but pursuing these with activities which differ in many respects from those of the school, the Boy Scout organiza-

tion is now generally recognized by school men as a highly desirable if not an indispensable supplement to the training afforded boys in the schools.

Under these circumstances it behooves school men and Boy Scout leaders to consider carefully the basis on which their efforts can be most effectively coordinated for the all-round development of the American boy. Articles have been written from time to time by leaders in both groups, and the subject is usually given attention in textbooks on extra-curriculum activities, but probably the most comprehensive contribution to the subject is an investigation[1] recently completed with extensively organized co-operation on the part of both educators and Boy Scout administrators.

The monograph in which the report appears includes six chapters, a bibliography, and several appendixes. The first chapter offers an excellent presentation of the administrative and the educational principles underlying the work of the two institutions as they attempt to serve a democratic society. In the second chapter previous studies bearing on the contacts of the schools and the Boy Scouts are reviewed. In the third chapter questionnaires returned by hundreds of Boy Scout executives and school principals and superintendents are analyzed to present an inventory of the relations existing today between the two institutions.

A review of previous studies comparing scouts and non-scouts is found in the fourth chapter. In the following chapter a report is given of an extensive study of the records of several thousand scouts and non-scouts registered in senior high schools in different parts of the country. These two groups are compared with respect to intelligence, scholastic achievement, achievement in extra-curriculum activities, character development, and the socio-economic status of their homes. The concluding chapter consists of a summary of significant findings and proposals for mutually helpful relations.

This work will command respect in both Boy Scout and educational circles because it deals objectively and helpfully with a problem in which both groups are vitally interested. For the same reason it should be given consideration in courses in extra-curriculum activities and in school administration.

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Discovering and unleashing the superior student.—A comprehensive bibliography of all the literature that has appeared relative to the problem of the articulation of secondary schools and colleges would constitute a volume in itself, and the increase in the number of contributions in this field continues unabated. Occasionally, however, a study is reported which makes a new approach or emphasizes a special phase of the problem and, as a consequence,

[1] Ray O. Wyland, *Scouting in the Schools:* A Study of the Relationships between the Schools and the Boy Scouts of America. Teachers College Contributions to Education, No. 631. New York: Teachers College, Columbia University, 1934. Pp. viii+200. $2.00.

becomes doubly interesting and doubly promising. In this category should be placed the first report of a study in progress at the University of Buffalo,[1] in which special concern is manifested for the superior student as he progresses through our system of schools. In 1929 the University began definitely to do something about the superior students who entered from the high schools of Buffalo. It soon became apparent that it would require considerable time and money properly to study and clarify the ramifications of the problem and the nature and needs of the students. The General Education Board came forward to support by annual grants a five-year experiment having for its purpose "the selection, guidance, and instruction of superior students from the Buffalo high schools who plan to enter the University as candidates for the Bachelor's degree" (p. viii). The present report constitutes the first half of the study.

In the Foreword to the report Samuel P. Capen, chancellor of the University of Buffalo, says: "At the point of articulation of secondary school and college the academic machinery is likely to exert the greatest drag upon [the superior student's] progress, to thwart his legitimate intellectual ambitions, to impose upon him arbitrary—and for him meaningless—prescriptions and prohibitions" (p. vii). To overcome this likelihood, Chancellor Capen points out, "colleges and the schools from which they draw the majority of their students should co-operate in studying the superior student, in examining without prejudice the educational fare provided by both secondary and higher institutions for his sustenance, and in making such experimental changes in course materials, programs of study, admission and graduation requirements as the facts discovered may suggest" (p. vii). Over a five-year period the University of Buffalo is attempting scientifically to establish and properly to evaluate these needed readjustments. The outcomes are interesting.

The organization of the report is clear cut. An orientation chapter by Edward S. Jones, director of personnel research in the University and general chairman of the committee directing the studies in articulation, is followed by Part I, which deals with the "Nature of the Superior Student." Seven chapters are consumed in reporting investigations of various phases of this problem. Part II, containing five chapters, deals with the "Prediction of College Performance." Extensive studies in the University of Buffalo are presented, as well as a condensed survey of the literature on college-performance predictions. Part III is addressed to the problem of "Measuring Overlapping between High School and College." Seven chapters are devoted to the study of overlapping, and then follows the concluding chapter on "Summary and Proposed Studies."

Space does not permit a review of the findings of all the studies reported. Suffice it to say that the investigators, after examining the superior student from the standpoint of aspects such as age, intellectual maturity, scholarship record,

[1] Henry C. Mills, Mazie Earle Wagner, Ruth E. Eckert, and Mary E. Sarbaugh, *Studies in Articulation of High School and College:* With Special Reference to the Superior Student, Series I. Edited by Edward S. Jones. University of Buffalo Studies, Vol. IX. Buffalo, New York: University of Buffalo, 1934. Pp. xiv+320.

subject and activity load, conclude that "a higher type of work might be expected of certain high-school students than is normally the case: apparently there are possibilities of intellectual achievement which are rarely realized and on which the individual seldom calls" (p. 299). For these students the investigators recommend that advanced studies be undertaken at an earlier age, leading to the completion of the high-school and college work in seven years. Their studies indicate that such a practice "is not attended by any unfavorable results either intellectually, socially, or from the point of view of health" (p. 299). With reference to the studies of prediction the major finding shows that the Regents' examinations rate highest among the criteria studied in predicting success in college. "In many respects they take the place of the cumulative record, advocated by Learned, although . . . . the value of such an index would be increased if a record of the student's failures were incorporated" (p. 300). Overlapping seems to exist in many subject fields. On this finding is based in part the recommendation that the superior students anticipate college work while yet in high school, actually studying systematically course outlines prepared for them by college instructors and taking examinations for college credit in various subject fields. The University of Buffalo, its faculty co-operating, is following exactly this plan. In general, "the several approaches to the problem of improving articulation between high school and college for the superior student all suggest the desirability of quickening the pace at which his education proceeds" (p. 301).

The reports are well studded with data, although in some reports the numbers of cases are small. In one or two places subjective implications by the investigator are used as possible explanations of certain puzzling data. On the whole, however, the authors are exceptionally honest in pointing out limitations when they exist. Readers will be interested to study Appendix B, which gives samples of special examinations used as a basis for awarding college credit. These include examinations in physics, chemistry, mathematics, English, history, German, economics, and accounting.

The report on the remainder of the five-year study will be eagerly awaited by hundreds of interested persons. Colleges, secondary schools, parents, the general public, and, much more, the superior students themselves are affected by practices such as have been adopted in the University of Buffalo. Let us hope that the final report will suggest how the major findings can be made practical in meeting the problems that they will no doubt create in the field of teaching, of guidance, and of making it possible for the superior students (at least some of them), once discovered, to continue through the college experience.

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A source book rather than a textbook in home economics.—The recent decided change in styling of dress forced many high-school teachers of home economics to the realization that they were not prepared to meet new teaching problems

within that area. College teachers have also been embarrassed by the comments of former students concerning the inadequacy of their training in clothing construction. Much of the teaching had been planned, and certainly most of the learning had been acquired, with the intention of repeating the situations *in toto*. A book, which in its original preparation pointed to a different way of learning, has been recently revised.[1] Clothing processes are fundamental, but their application varies with changes in style, with the introduction of new textiles and new fabrics, and with the purpose which a garment will serve. This book brings the processes together for those interested in sewing, whether in the classroom or in the home. The material is organized in line with the belief that books should be one source of data rather than that they should provide lessons to be learned or a curriculum to be followed.

The revision has added new sections on the order of construction processes and on draping. The sections on fastenings and reinforcements have been expanded, and all sections have been brought up to date. Line drawings clarify the written descriptions. An alphabetical arrangement facilitates the use of the book as source material. The treatment of construction processes is complete, clearly written, and adequately illustrated. The Table of Contents includes detailed subheadings, and the book is well indexed. Additional value would have been gained by giving greater attention to remodeling, to the use of garments as patterns, to the construction of sleeves and collars from patterns other than the foundation pattern being used—all common practices frequently resulting in ill-fitting garments. The authors seem also to be counting heavily on the use of commercial patterns in spite of their reference to blocking simple patterns and collars. If commercial patterns were thus extensively used in practice, the book would be much less useful than this reviewer believes it to be, for such patterns today go a long way toward teaching the construction processes that they require.

The book is a valuable contribution to the literature of home economics, and it follows a general plan which this reviewer believes could be used to advantage for providing source material in other areas of home economics. In accordance with the privilege of reviewers, however, the suggestion is made that certain omitted items should have been included if the book was to have maximum value in treating the construction of clothing. It would have been helpful if more attention had been given to those factors which aid in deciding which process to use and why certain things should be done. The teaching idea has predominated in the preparation of the material, and it is to be a teaching situation in which the teacher sets the stage. The pupil learns how to plait and smock but not when to use these processes. She is told that pressing should follow each stitching operation and should be used at any time when it will aid in construction, but she is not told what pressing does or how one knows when it will aid in construction. The presentation of standards for properly fitted

[1] Clara M. Brown, Ethel R. Gorham, and Aura I. Keever, *Clothing Construction*. Boston: Ginn & Co., 1934 (revised). Pp. xvi+312. $1.80.

garments and information on the use of seams represent in part the type of material suggested here as needed to make the book most useful to the independent worker, in or out of school. There is no reason for believing that the authors wished to make the book useful to the independent worker. The criticism, then, is centered on a certain lack of breadth of purpose rather than a failure to carry out the purpose. The decision on when to use a process and the knowledge of standards of satisfactory use are, however, too intimately related to successful clothing construction to be successfully divorced, and for that reason they need more consideration for maximum usefulness than has been given them in this book.

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Extensive reading in second year Latin.—Although the Classical Investigation report (1924) recommended extensive reading of easy Latin in the second year of the high-school course in Latin and many second-year textbooks have been published since 1924, the Latin reading material in most of these books has carried with it such vocabulary difficulty that it was impossible for the pupils to read extensively and actually understand the Latin read. A second-year book[1] has appeared, the authors of which have made a strong effort to cut down this vocabulary hazard by gradually introducing new words in the Latin reading material and by repeating these new words at least three times soon after their first appearance. The first three times a new word appears in the reading material, its meaning is given after it in parentheses. If the word is not among the first- and second-year words of the College Entrance Examination Board's word list, which were set for mastery in the first book of this series (Wilbert Lester Carr and George Depue Hadzsits, *The Living Language:* A Latin Book for Beginners. Boston: D. C. Heath & Co., 1933), its meaning, unless self-evident, is given six times. Each new word is printed in the margin of the book at its first appearance and, after it has been used at least three times in the reading exercises, it is listed for drill in the next work unit. In a rough count of the first thousand running words in the reading exercises, the reviewer found forty-six new words, or a vocabulary "density" of about 1:22. An examination of reading exercises further on in the book showed a lower density. For instance, Exercise 118 has only two new words in 123 running words—a density of about 1:60. There is probably a reasonable chance that a pupil will be able to read Latin when new words are introduced so slowly and when they are repeated so frequently as is the case in this book.

As in the first-year book of this series, new forms and syntax are presented from a functional point of view. The pupil is expected to learn to recognize these forms and their uses when he sees them in connected Latin rather than to

[1] Wilbert Lester Carr, George Depue Hadzsits, and Harry E. Wedeck, *The Living Language:* A Second Latin Book. Boston: D. C. Heath & Co., 1934. Pp. xvi+640. $1.80.

recall them for reproduction either orally or in written form. Each reading exercise is followed by questions on comprehension in order that the pupil may be encouraged to read with the purpose of getting the meaning of the passage. The book is divided on the basis of the reading material into six parts: Part I, "Apuleius' 'Cupid and Psyche' "; Part II, "Stories from Ovid"; Part III, "Stories from Medieval Latin"; Part IV, "Stories from Livy"; Part V, "Stories from Caesar"; Part VI, "Selections from Caesar." Except in Part VI the vocabulary load of the Latin author has been cut down.

At the end of every tenth reading section there is a "Work Unit" (twenty-nine in all) which consists in both formal and functional drill on the new words, forms, and constructions in the reading material of each unit. There is a certain inconsistency, the reviewer believes, in introducing exercises requiring recall knowledge of forms and syntax in a book pledged to the functional method. Instead of asking the pupil to write Latin sentences, the principal parts of verbs, or certain forms, why not provide drill material of an objective type which requires only a recognition knowledge of the forms and constructions? However, formal drill material is found in much less abundance in this book than in most textbooks in second-year Latin books.

Brief notes are provided below the reading material rather than at the end of the book. Scattered throughout the book are two maps and thirty-eight illustrations, most of which are drawings with Latin titles designed to help the pupil in his comprehension of the reading material. The usual grammatical appendixes and vocabularies are provided. About forty-one pages are taken up with supplementary material in English on Caesar, Gaul, and the Roman army. The section on Gallic names and their modern survivals will be useful in connecting Caesar's Gaul and modern France. There is also a section on the English pronunciation of Latin proper names met in the Latin reading. Fourteen supplementary exercises in writing Latin are supplied for teachers who desire such material.

In the reviewer's opinion, this book, because of its scientific treatment of vocabulary difficulties, makes the objective of the extensive reading of easy Latin much more possible of attainment than do most textbooks in Latin. Much more easy Latin reading material is needed in which the proportion of new words to running words is kept low and the new words are repeated many times in a context of familiar words. Otherwise, there will be no real reading of Latin, and the pupils will either guess at the meaning or painfully decipher a few lines a day.

MARK E. HUTCHINSON

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Training in thinking through physics.—A textbook in high-school physics which emphasizes that "any course of study should have for its main object the training of the pupil to do his own thinking" (p. v) has made its appearance.[1]

[1] Alfred M. Butler, *Foundations of Physics*. Boston: M. Barrows & Co., 1934 (replacing *Household Physics*). Pp. viii+614. $2.00.

The author, to continue quoting from his Preface, insists that "the tools of a student are the facts and laws of a subject. It should be the purpose of a textbook, as contrasted with an encyclopedia, to develop methods of thought as well as to present in a clear, simple manner the facts of a subject" (p. v). With this conception the reviewer believes all teachers of secondary-school science will agree. Several trials of the textbook in typical teaching situations will probably be necessary to prove whether the book serves this purpose well. In content, organization, and pedagogical helps it appears to hold promise. Almost without exception, the questions at the ends of the chapters are not of the informational type but are answerable only on a basis of information and understanding and the application of what is known to the situation presented. Thinking rather than mathematical calculation is emphasized. The number of mathematical problems is relatively small, although probably adequate, especially if supplemented by calculations based on laboratory experiments.

The selection of subject matter is based on the thesis:

> The problem before a writer is not so much what to include, as what to omit in order to keep the content of the book within reasonable limits [p. v].
>
> A well-founded knowledge of the common applications of physical principles is much more valuable in a well-rounded education than half-learned information about many applications, some of which may never enter the lives of the pupils [p. vi].
>
> With this in mind the author has not mentioned many of the topics usually found in a text and has presented only those with which most pupils are familiar [p. v].

The selection on this basis seems to have been well done. More thorough treatment is accorded those topics included than is sometimes found, and probably more real learning to the "mastery" or "functional" level will result than if a larger number of topics were studied, each more briefly.

The order of presentation of the usual major topics is as follows: heat, light, sound, magnetism, electricity, radio, mechanics. Two chapters of a somewhat unorthodox nature follow, the first dealing with plumbing and the second with the automobile. Both are comprised of content which might have been included in earlier chapters but which for apparent purposes of synthesis and lifelike presentation have been withheld in the earlier chapters and presented separately in a later portion of the book.

The mechanical features of the book, including paper, binding, type, and illustrations, are of high quality. The language employed is as simple as the content will allow; there are not too many technical terms, and those which are employed are explained and used sufficiently to breed familiarity. The book merits the serious consideration of high-school teachers who are contemplating a change in textbooks in physics.

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CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY AND PRACTICE

BOVET, PIERRE. *Les examens de recrues dans l'armée Suisse, 1854–1913: Enquête internationale sur les examens.* Collection d'actualités pédagogiques. Neuchâtel, Switzerland: Delachaux & Niestlé, 1935. Pp. xvi+208.

DAVIS, ROBERT A. *Psychology of Learning:* A Textbook in Educational Psychology. New York: McGraw-Hill Book Co., Inc., 1935. Pp. xii+490. $3.00.

DOWLING, PATRICK JOHN. *The Hedge Schools of Ireland.* London: Longmans, Green & Co., 1935. Pp. xviii+182.

GLASER, EMMA. *On the Teaching of Junior High School English.* New York: D. Appleton-Century Co., Inc., 1935. Pp. vi+308. $2.00.

HART, JOSEPH K. *Education for an Age of Power:* The TVA Poses a Problem. New York: Harper & Bros., 1935. Pp. x+246. $2.50.

HAUPT, GEORGE W. *An Experimental Application of a Philosophy of Science Teaching in an Elementary School.* Teachers College Contributions to Education, No. 633. New York: Teachers College, Columbia University, 1935. Pp. vi+110. $1.50.

HUGHES, WILLIAM LEONARD. *Administration of Health and Physical Education in Colleges.* New York: A. S. Barnes & Co., Inc., 1935. Pp. xiv+368. $3.00.

LEIGHTON, R. W. *Studies of Laboratory Methods of Teaching.* Combined with Seashore, Robert H. *Qualitative Aspects in the Improvement of Science Teaching.* Ann Arbor, Michigan: Edwards Bros., Inc., 1935. Pp. viii+184.

Radio and Education: Proceedings of the Fourth Annual Assembly of the National Advisory Council on Radio in Education, Inc., 1934. Edited by Levering Tyson. Chicago: University of Chicago Press, 1935. Pp. viii+266. $3.00.

Social Change and Education. Thirteenth Yearbook of the Department of Superintendence. Washington: Department of Superintendence of the National Education Association, 1935. Pp. 384. $2.00.

STALEY, SEWARD C. *The Curriculum in Sports:* Physical Education. Philadelphia: W. B. Saunders Co., 1935. Pp. 374. $2.50.

The Teaching of Arithmetic. Tenth Yearbook of the National Council of Teachers of Mathematics. New York: Teachers College, Columbia University, 1935. Pp. vi+290.

BOOKS PRIMARILY FOR HIGH-SCHOOL TEACHERS AND PUPILS

BENNETT, CHARLES A. *Beginning Problems in Mechanical Drawing.* Peoria, Illinois: Manual Arts Press, 1934. Pp. 92. $0.48.

BETZ, WILLIAM. *Junior Mathematics for Today,* Book III. Boston: Ginn & Co., 1935. Pp. xiv+562. $1.24.

CERVANTES, MIGUEL DE. *Aventuras de Don Quijote:* A Simplified Version of the Most Important Episodes. Edited by H. Alpern and J. Martel. Boston: Houghton Mifflin Co., 1935. Pp. xii+244. $1.12.

CHURCHMAN, PHILIP H., ATWOOD, LELAND L., and RACINE, ARTHUR R. *Manual To Accompany "A First Book in French."* New York: Macmillan Co., 1935. Pp. 94. $0.80.

DORADO, CAROLINA MARCIAL. *Pasitos.* New York: Harper & Bros., 1935. Pp. xviii+388. $1.48.

EDMONSON, JAMES B., and DONDINEAU, ARTHUR. *Civics through Problems:* A Social and Governmental Civics. New York: Macmillan Co., 1935. Pp. xiv+622. $1.60.

ELLIOTT, MABEL A., MERRILL, FRANCIS E., WRIGHT, DOROTHY GRAUERHOLZ, and WRIGHT, CHARLES O. *Our Dynamic Society.* New York: Harper & Bros., 1935. Pp. viii+380. $1.68.

FIRMAN, SIDNEY G., and SHERMAN, GRACE ELIZABETH. *The Progressive Spelling Series:* Manual for Teachers, pp. 32; Second Year, pp. iv+28; Third Year, pp. viii+40; Fourth Year, pp. viii+40; Fifth Year, pp. viii+40; Sixth Year, pp. viii+40; Seventh Year, pp. viii+40; Eighth Year, pp. viii+40. Newark, New Jersey: Silver, Burdett & Co., 1935. $0.16 each.

FULLER, H. H., and WEAVER, ANDREW THOMAS. *How To Read Aloud:* A Guide to Interpretative Reading. Newark, New Jersey: Silver, Burdett & Co., 1935. Pp. xviii+190. $1.00.

GORDON, MARGERY, and KING, MARIE B. *Verse of Our Day:* An Anthology of Modern American and British Poetry with Studies in Poetry. New York: D. Appleton-Century Co., Inc., 1935 (revised). Pp. xxx+520. $1.32.

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